

Quantitative Aptitude

Simplification:

1. $18800 / 470 / 20$

- A. 1
- B. 2
- C. 3
- D. 4

Answer: B

Explanation:

$$18800 / 470 / 20 = (18800 / 470) / 20 = 40 / 20 = 2$$

2. Simplify

$$b - [b - (a+b) - \{b - (b - a+b)\} + 2a]$$

- A. a
- B. 2a
- C. 4a
- D. 0

Answer: D

Explanation:

$$\begin{aligned} & b - [b - (a+b) - \{b - (b - a+b)\} + 2a] \\ &= b - [b - a - b - \{b - (2b - a)\} + 2a] \\ &= b - [-a - \{b - 2b + a\} + 2a] \\ &= b - [-a - \{-b + a\} + 2a] \end{aligned}$$

$$=b-[-a+b-a+2a]$$

$$=b-[-2a+b+2a]$$

$$=b-b$$

$$=0$$

3. $100 + 50 * 2 = ?$

A. 200

B. 150

C. 100

D. 300

Answer: A

Explanation:

After applying BOMAS rule,

First Multiplication will be done then addition

So it will be $100 + 100 = 200$

4. $(3080 + 6160) / 28$

A. 380

B. 350

C. 330

D. 310

Answer: C

Explanation:

As per BODMAS rule, first we will solve the equation in bracket then we will go for division=
 $(9240)/28 = 330$

5. $5004 / 139 - 6$

- A. 25
- B. 27
- C. 29
- D. 30

Answer: D

6. $7500 + (1250 / 50)$

- A. 7500
- B. 7525
- C. 7550
- D. 8000

Answer: B

Explanation:

As per BODMAS rule first we will solve the terms in the bracket then other.

$$= 7500 + (25) = 7525$$

7. A man has Rs. 480 in the denominations of one-rupee notes, five-rupee notes and ten-rupee notes. The number of notes of each denomination is equal. What is the total number of notes that he has ?

- A. 45
- B. 60
- C. 75
- D. 90

Answer: D

Explanation: Let number of notes of each denomination be x.

Then $x + 5x + 10x = 480$

$16x = 480$

$x = 30$.

Hence, total number of notes = $3x = 90$.

8. There are two examinations rooms A and B. If 10 students are sent from A to B, then the number of students in each room is the same. If 20 candidates are sent from B to A, then the number of students in A is double the number of students in B. The number of students in room A is:

- A. 20
- B. 80
- C. 100
- D. 200

Answer: C

Explanation:

Let the number of students in rooms A and B be x and y respectively.

Then, $x - 10 = y + 10$ $x - y = 20$ (i)

and $x + 20 = 2(y - 20)$ $x - 2y = -60$ (ii)

Solving (i) and (ii) we get: $x = 100$, $y = 80$.

The required answer A = 100.

9. The price of 10 chairs is equal to that of 4 tables. The price of 15 chairs and 2 tables together is Rs. 4000. The total price of 12 chairs and 3 tables is:

- A. Rs. 3500
- B. Rs. 3750
- C. Rs. 3840
- D. Rs. 3900

Answer: D

Explanation:

Let the cost of a chair and that of a table be Rs. x and Rs. y respectively.

Then, $10x = 4y$ or $y = 5/2x$

$$15x + 2y = 4000$$

$$15x + 2 \times 5/2x = 4000$$

$$20x = 4000$$

Therefore $x = 200$

$$\text{So, } y = (5/2 \times 200) = 500$$

Hence, the cost of 12 chairs and 3 tables = $12x + 3y$

$$= \text{Rs. } (2400 + 1500)$$

$$= \text{Rs. } 3900.$$

10. If $a - b = 3$ and $a^2 + b^2 = 29$, find the value of ab .

A. 10

B. 12

C. 15

D. 18

Answer: A

Explanation:

$$2ab = (a^2 + b^2) - (a - b)^2$$

$$= 29 - 9 = 20$$

$$ab = 10.$$

11. The price of 2 sarees and 4 shirts is Rs. 1600. With the same money one can buy 1 saree and 6 shirts. If one wants to buy 12 shirts, how much shall he have to pay?

- A. Rs. 1200
- B. Rs. 2400
- C. Rs. 4800
- D. Cannot be determined
- E. None of these

Answer: B

Explanation:

Let the price of a saree and a shirt be Rs. x and Rs. y respectively.

Then, $2x + 4y = 1600$ (i)

and $x + 6y = 1600$ (ii)

Divide equation (i) by 2, we get the below equation.

$\Rightarrow x + 2y = 800$. --- (iii)

Now subtract (iii) from (ii)

$$x + 6y = 1600 \quad (-)$$

$$x + 2y = 800$$

$$4y = 800$$

Therefore, $y = 200$.

Now apply value of y in (iii)

$$\Rightarrow x + 2 \times 200 = 800$$

$$\Rightarrow x + 400 = 800$$

Therefore $x = 400$

Solving (i) and (ii) we get $x = 400$, $y = 200$.

Cost of 12 shirts = Rs. (12×200) = Rs. 2400.

12. Find the value of $1/(3+1/(3+1/(3-1/3)))$

A. $3/10$

B. $10/3$

C. $27/89$

D. $89/27$

Answer: C

Explanation: $1/[3 + (1/(3+1/(3 - 1/3)))]$

$$\Rightarrow 1/[3 + 1/(3 + 1/(8/3))]$$

$$\Rightarrow 1/[3 + 1/(3 + 3/8)]$$

$$\Rightarrow 1/[3 + 8/27]$$

$$\Rightarrow 1/(89/27)$$

$$\Rightarrow 27/89$$

13. Find the value of

A. $3\frac{1}{2} 99$;

B. $34/99$

C. 2.131313

D. 3.141414

Answer: D

Explanation: $6/9 + 7/9 + 9/9 + 69/99$

$$2/3 + 7/9 + 1 + 69/99$$

$$(66 + 77 + 99 + 69)/99$$

$311/99 \Rightarrow 3.141414$

14. Find the value of

$$\frac{((0.1)^3 + (0.6)^3 + (0.7)^3 - (0.3)(0.6)(0.7))}{((0.1)^2 + (0.6)^2 + (0.7)^2 - 0.006 - 0.42 - 0.07)}$$

A. $14/10$

B. 1.35

C. $13/10$

D. 0

Answer: A

Explanation:

$$\frac{((0.1)^3 + (0.6)^3 + (0.7)^3 - (0.3)(0.6)(0.7))}{((0.1)^2 + (0.6)^2 + (0.7)^2 - 0.006 - 0.42 - 0.07)}$$

$$\Rightarrow \frac{(0.1 + 0.6 + 0.7)^3}{(0.1 + 0.6 + 0.7)^2}$$

$$\Rightarrow 0.1 + 0.6 + 0.7 \Rightarrow 1.4 = 14/10$$

15. Solve $(0.76 \times 0.76 \times 0.76 - 0.008) / (0.76 \times 0.76 + 0.76 \times 0.2 + 0.04)$

A. 0.56

B. 0.65

C. 0.54

D. 0.45

Answer: A

16. Find the value of \times in the following

$$(1 \frac{5}{3}) \div \frac{3}{11} \times \frac{*}{11} = (2 \frac{2}{3} \times \frac{7}{5} \times \frac{6}{7})$$

A. 4

- B. 3
- C. 3.6
- D. 3.06

Answer: C

17. Find the value of $(2 - 1/3)(1 - 1/4)(1 - 1/5)\dots\dots(1 - 1/99)(1 - 1/100)$

- A. 1/50
- B. 1/25
- C. 1/20
- D. 1/40

Answer: C

Explanation:

$$(2 - 1/3)(1 - 1/4)(1 - 1/5)\dots\dots(1 - 1/99)(1 - 1/100)$$
$$5/3 \times 3/4 \times 4/5 \times \dots\dots 98/99 \times 99/100 = 5/100 = 1/20$$

18. Find the value of $(875\ 233/899) \times 899$

- A. 786588
- B. 786858
- C. 786885
- D. 786885

Answer: B

Explanation:

$$(875\ 233/899) \times 899$$
$$(786625 + 233)/899 \times 899$$
$$\Rightarrow 786858/899 \times 899$$

Therefore the value is 786858

19. Find the value of $\frac{3}{11} \times [(1 + \frac{1}{3}) (1 + \frac{1}{4}) \dots\dots\dots (1 + \frac{1}{120})]$ is

- A. 121
- B. 11
- C. 10.6
- D. 7.82

Answer: B

Explanation:

$$\frac{3}{11} \times [(1 + \frac{1}{3}) (1 + \frac{1}{4}) \dots\dots\dots (1 + \frac{1}{120})]$$

$$\frac{3}{11} \times [\frac{4}{3} + \frac{5}{4} \times \dots\dots\dots \frac{121}{120}]$$

$$\frac{3}{11} \times \frac{4}{3} \times \frac{5}{4} \times \dots\dots \frac{121}{120}$$

$$\frac{121}{11} = 11$$

20. If $1^3 + 2^3 + 3^3 + \dots\dots + 10^3 = 516$ then the value of $2^3 + 4^3 + 6^3 + \dots\dots + 20^3$ is

- A. 1013
- B. 1032
- C. 516
- D. 900

Answer: B

Explanation:

$$2(1^3 + 2^3 + 3^3 + \dots\dots\dots + 10^3)$$

$$2 \times 516 = 1032$$

Simple Interest

1. A person borrows Rs. 5000 for 2 years at 4% p.a. simple interest. He immediately lends it to another person at 6p.a for 2 years. Find his gain in the transaction per year.

- A. Rs. 112.50
- B. Rs. 125
- C. Rs. 150
- D. Rs. 167.50

Answer: A

Explanation:

$$\begin{aligned}\text{Gain in 2 years} &= \text{Rs.} \left[\left(5000 \times \frac{25}{4} \times \frac{2}{100} \right) - \left(\frac{5000 \times 4 \times 2}{100} \right) \right] \\ &= \text{Rs.} (625 - 400) \\ &= \text{Rs.} 225.\end{aligned}$$

$$\therefore \text{Gain in 1 year} = \text{Rs.} \left(\frac{225}{2} \right) = \text{Rs.} 112.50$$

2. A certain amount earns simple interest of Rs. 1750 after 7 years. Had the interest been 2% more, how much more interest would it have earned?

- A. Rs. 35
- B. Rs. 245
- C. Rs. 350
- D. Cannot be determined
- E. None of these

Answer: D

Explanation:

We need to know the S.I., principal and time to find the rate.

Since the principal is not given, so data is inadequate.

3. What will be the ratio of simple interest earned by certain amount at the same rate of interest for 6 years and that for 9 years?

- A. 1 : 3
- B. 1 : 4
- C. 2 : 3
- D. Data inadequate
- E. None of these

Answer: C

Explanation:

Let the principal be P and rate of interest be R%.

$$\text{Required ratio} = \frac{\left(\frac{P \times R \times 6}{100}\right)}{\left(\frac{P \times R \times 9}{100}\right)} = \frac{6PR}{9PR} = \frac{6}{9} = 2 : 3.$$

4. A sum of money amounts to Rs. 9800 after 5 years and Rs. 12005 after 8 years at the same rate of simple interest. The rate of interest per annum is:

- A. 5%
- B. 8%
- C. 12%
- D. 15%

Answer: C

Explanation:

S.I. for 3 years = Rs. (12005 - 9800) = Rs. 2205.

$$\text{S.I. for 5 years} = \text{Rs.} \left(\frac{2205}{3} \times 5\right) = \text{Rs.} 3675$$

∴ Principal = Rs. (9800 - 3675) = Rs. 6125.

$$\text{Hence, rate} = \left(\frac{100 \times 3675}{6125 \times 5}\right)\% = 12\%$$

5. A sum of money at simple interest amounts to Rs. 815 in 3 years and to Rs. 854 in 4 years.
The sum is:

- A. Rs. 650
- B. Rs. 690
- C. Rs. 698
- D. Rs. 700

Answer: C

Explanation:

S.I. for 1 year = Rs. (854 - 815) = Rs. 39.

S.I. for 3 years = Rs.(39 x 3) = Rs. 117.

Principal = Rs. (815 - 117) = Rs. 698.

6. Mr. Thomas invested an amount of Rs. 13,900 divided in two different schemes A and B at the simple interest rate of 14% p.a. and 11% p.a. respectively. If the total amount of simple interest earned in 2 years be Rs. 3508, what was the amount invested in Scheme B?

- A. Rs. 6400
- B. Rs. 6500
- C. Rs. 7200
- D. Rs. 7500
- E. None of these

Answer: A

Explanation:

Let the sum invested in Scheme A be Rs. x and that in Scheme B be Rs. $(13900 - x)$.

$$\text{Then, } \left(\frac{x \times 14 \times 2}{100} \right) + \left(\frac{(13900 - x) \times 11 \times 2}{100} \right) = 3508$$

$$\Rightarrow 28x - 22x = 350800 - (13900 \times 22)$$

$$\Rightarrow 6x = 45000$$

$$\Rightarrow x = 7500.$$

So, sum invested in Scheme B = Rs. $(13900 - 7500)$ = Rs. 6400.

7. A sum fetched a total simple interest of Rs. 4016.25 at the rate of 9 p.c.p.a. in 5 years.

What is the sum?

- A. Rs. 4462.50
- B. Rs. 8032.50
- C. Rs. 8900
- D. Rs. 8925
- E. None of these

Answer: D

Explanation:

$$\begin{aligned}\text{Principal} &= \text{Rs. } \left(\frac{100 \times 4016.25}{9 \times 5} \right) \\ &= \text{Rs. } \left(\frac{401625}{45} \right) \\ &= \text{Rs. } 8925.\end{aligned}$$

8. How much time will it take for an amount of Rs. 450 to yield Rs. 81 as interest at 4.5% per annum of simple interest?

- A. 3.5 years
- B. 4 years
- C. 4.5 years
- D. 5 years

Answer: B

Explanation:

$$\text{Time} = \left(\frac{100 \times 81}{450 \times 4.5} \right) \text{years} = 4 \text{ years.}$$

9. Reena took a loan of Rs. 1200 with simple interest for as many years as the rate of interest. If she paid Rs. 432 as interest at the end of the loan period, what was the rate of interest?

- A. 3.6
- B. 6
- C. 18
- D. Cannot be determined
- E. None of these

Answer: B

Explanation:

Let rate = R% and time = R years.

$$\text{Then, } \left(\frac{1200 \times R \times R}{100} \right) = 432$$

$$\Rightarrow 12R^2 = 432$$

$$\Rightarrow R^2 = 36$$

$$\Rightarrow R = 6.$$

10. A man took loan from a bank at the rate of 12% p.a. simple interest. After 3 years he had to pay Rs. 5400 interest only for the period. The principal amount borrowed by him was:

- A. Rs. 2000
- B. Rs. 10,000
- C. Rs. 15,000
- D. Rs. 20,000

Answer: C

Explanation:

$$\text{Principal} = \text{Rs.} \left(\frac{100 \times 5400}{12 \times 3} \right) = \text{Rs. } 15000.$$

11. A sum of Rs. 725 is lent in the beginning of a year at a certain rate of interest. After 8 months, a sum of Rs. 362.50 more is lent but at the rate twice the former. At the end of the year, Rs. 33.50 is earned as interest from both the loans. What was the original rate of interest?

- A. 3.6%
- B. 4.5%
- C. 5%
- D. 6%
- E. None of these

Answer: E

Explanation:

Let the original rate be R%. Then, new rate = (2R)%.

Note:

Here, original rate is for 1 year(s); the new rate is for only 4 months i.e. $\frac{1}{3}$ year(s).

$$\therefore \left(\frac{725 \times R \times 1}{100} \right) + \left(\frac{362.50 \times 2R \times 1}{100 \times 3} \right) = 33.50$$

$$\Rightarrow (2175 + 725) R = 33.50 \times 100 \times 3$$

$$\Rightarrow (2175 + 725) R = 10050$$

$$\Rightarrow (2900)R = 10050$$

$$\Rightarrow R = \frac{10050}{2900} = 3.46$$

\therefore Original rate = 3.46%

12. An automobile financier claims to be lending money at simple interest, but he includes the interest every six months for calculating the principal. If he is charging an interest of 10%, the effective rate of interest becomes:

- A. 10%
- B. 10.25%
- C. 10.5%
- D. None of these

Answer: B

Explanation:

Let the sum be Rs. 100. Then,

$$\text{S.I. for first 6 months} = \text{Rs. } \left(\frac{100 \times 10 \times 1}{100 \times 2} \right) = \text{Rs. } 5$$

$$\text{S.I. for last 6 months} = \text{Rs. } \left(\frac{105 \times 10 \times 1}{100 \times 2} \right) = \text{Rs. } 5.25$$

So, amount at the end of 1 year = Rs. $(100 + 5 + 5.25) = \text{Rs. } 110.25$

$$\therefore \text{Effective rate} = (110.25 - 100) = 10.25\%$$

13. A sum of Rs. 12,500 amounts to Rs. 15,500 in 4 years at the rate of simple interest. What is the rate of interest?

- A. 3%
- B. 4%
- C. 5%
- D. 6%
- E. None of these

Answer: D

Explanation:

$$\text{S.I.} = \text{Rs. } (15500 - 12500) = \text{Rs. } 3000.$$

$$\text{Rate} = \left(\frac{100 \times 3000}{12500 \times 4} \right) \% = 6\%$$

14. Find the simple interest on Rs 7000 at $50\frac{1}{3}\%$ for 9 months

- A. Rs. 1075
- B. Rs. 975
- C. Rs. 875
- D. Rs. 775

Answer: C

Explanation:

$$S.I. = P \times R \times T / 100 \quad S.I. = P \times R \times T / 100$$

So, by putting the values in the above formula, our result will be.

$$\text{Required result} = 7000 \times 50 \times \frac{1}{3} \times \frac{9}{12} \times \frac{100}{100} = 875$$

15. Sahil took a loan for 6 years at the rate of 5% per annum on Simple Interest, If the total interest paid was Rs. 1230, the principal was

- A. 4100
- B. 4200
- C. 4300
- D. 4400

Answer: A

Explanation:

$$S.I. = P \times R \times T / 100 \Rightarrow P = S.I. \times 100 / R \times T \quad S.I. = P \times R \times T / 100 \Rightarrow P = S.I. \times 100 / R \times T$$

By applying above formula we can easily solve this question, as we are already having the simple interest.

$$\Rightarrow P = 1230 \times 100 / 5 \times 6 \Rightarrow P = 4100$$

(16-20) Each of the questions given below consists of a statement and / or a question and two statements numbered I and II given below it. You have to decide whether the data provided in the statement(s) is / are sufficient to answer the given question. Read the both statements and

- Give answer (A) if the data in Statement I alone are sufficient to answer the question, while the data in Statement II alone are not sufficient to answer the question.
- Give answer (B) if the data in Statement II alone are sufficient to answer the question, while the data in Statement I alone are not sufficient to answer the question.
- Give answer (C) if the data either in Statement I or in Statement II alone are sufficient to answer the question.
- Give answer (D) if the data even in both Statements I and II together are not sufficient to answer the question.
- Give answer (E) if the data in both Statements I and II together are necessary to answer the question.

16. What is the rate of simple interest?

I. The total interest earned was Rs. 4000.

II. The sum was invested for 4 years.

- A. I alone sufficient while II alone not sufficient to answer
- B. II alone sufficient while I alone not sufficient to answer
- C. Either I or II alone sufficient to answer
- D. Both I and II are not sufficient to answer
- E. Both I and II are necessary to answer

Answer: D

Explanation:

We know that, $R = \left(\frac{100 \times \text{S.I.}}{P \times T} \right)$

Now, I gives, S.I. = Rs. 4000.

II gives, T = 4 years.

But, P is unknown. So, we cannot find R.

So, given data is insufficient to get R.

∴ Correct answer is (D).

17. What percentage of simple interest per annum did Anand pay to Deepak?

I. Anand borrowed Rs. 8000 from Deepak for four years.

II. Anand returned Rs. 8800 to Deepak at the end of two years and settled the loan.

- A. I alone sufficient while II alone not sufficient to answer
- B. II alone sufficient while I alone not sufficient to answer
- C. Either I or II alone sufficient to answer
- D. Both I and II are not sufficient to answer
- E. Both I and II are necessary to answer

Answer: E

Explanation:

Let the rate be R% p.a.

I gives, P = Rs. 8000 and T = 4 years.

II gives, S.I. = Rs. (8800 - 8000) = Rs. 800.

$$\therefore R = \left(\frac{100 \times \text{S.I.}}{P \times T} \right) = \left(\frac{100 \times 800}{8000 \times 4} \right) \% = 2\frac{1}{2}\% \text{ p.a.}$$

Thus, I and II both are needed to get the answer.

\therefore Correct answer is (E).

18. What is the sum which earned interest?

I. The total simple interest was Rs. 7000 after 7 years.

II. The total of sum and simple interest was double of the sum after 5 years.

- A. I alone sufficient while II alone not sufficient to answer
- B. II alone sufficient while I alone not sufficient to answer
- C. Either I or II alone sufficient to answer
- D. Both I and II are not sufficient to answer
- E. Both I and II are necessary to answer

Answer: E

Explanation:

Let the sum be Rs. x .

I gives, S.I. = Rs. 7000 and $T = 7$ years.

II gives, Sum + S.I. for 5 years = 2 x Sum \Rightarrow Sum = S.I. for 5 years.

Now, S.I. for 7 years = Rs. 7000.

$$\therefore \text{S.I. for 1 year} = \text{Rs. } \frac{7000}{7} = \text{Rs. } 1000.$$

Thus, I and II both are needed to get the answer.

\therefore Correct answer is (E).

19. The simple interest on a sum of money is Rs. 50. What is the sum?

I. The interest rate is 10% p.a.

II. The sum earned simple interest in 10 years.

- A. I alone sufficient while II alone not sufficient to answer
- B. II alone sufficient while I alone not sufficient to answer
- C. Either I or II alone sufficient to answer
- D. Both I and II are not sufficient to answer
- E. Both I and II are necessary to answer

Answer: E

Explanation:

Given : S.I. = Rs. 50.

I gives, $R = 10\%$ p.a.

II gives, $T = 10$ years.

$$\therefore \text{Sum} = \left(\frac{100 \times \text{S.I.}}{T \times R} \right) = \text{Rs. } \left(\frac{100 \times 50}{10 \times 10} \right) = \text{Rs. } 50.$$

Thus, I and II together give the answer.

\therefore Correct answer is (E).

20. What is the principal sum?

I. The sum amounts to Rs. 690 in 3 years at S.I.

II. The sum amounts to Rs. 750 in 5 years at S.I.

III. The rate of interest is 5% p.a.

- A. I and III only
- B. II and III only
- C. I and II only
- D. I and III only, or II and III only
- E. Any two of the three

Answer: E

Explanation:

Clearly, any two of the three will give us the answer.

Correct answer is (E).

Percentages:

1. What will be the fraction of 20%

- A. $\frac{1}{4}$
- B. $\frac{1}{5}$
- C. $\frac{1}{10}$
- D. None of above

Answer: B

Explanation:

It will $20 \times \frac{1}{100} = \frac{1}{5}$

2. What will be the fraction of 4%?

- A. $\frac{1}{20}$
- B. $\frac{1}{50}$



C. $1/75$

D. $1/25$

Answer: D

Explanation:

$$4 * 1/100 = 1/25.$$

3. The ratio 5:20 expressed as percent equals to

A. 50 %

B. 125 %

C. 25 %

D. None of above

Answer: C

Explanation:

Actually it means 5 is what percent of 20, which can be calculated as,

$$(5/20) * 100 = 5 * 5 = 25$$

4. 2.09 can be expressed in terms of percentage as

A. 2.09%

B. 20.9%

C. 209%

D. 0.209%

Answer: C

Explanation:

While calculation in terms of percentage we need to multiply by 100, so

$$2.09 * 100 = 209.$$



5. Half of 1 percent written as decimal is

- A. 5
- B. 0.5
- C. 0.05
- D. 0.005

Answer: D

Explanation:

It will be $1/2(1\%) = 1/2(1/100) = 1/200 = 0.005$

6. What is 15 percent of 34

- A. 5.10
- B. 4.10
- C. 3.10
- D. 2.10

Answer: A

Explanation: It will be 15% of 34

$= (15/100) * 34 = 5.10$

7. Evaluate 28% of 450 + 45% of 280

- A. 232
- B. 242
- C. 252
- D. 262

Answer: C

Explanation:

$$=(28/100) * 450 + (45/100) * 280$$

$$=126 + 126 = 252$$

8. In an election between two candidates, one got 55% of the total valid votes, 20% of the votes were invalid. If the total number of votes was 7500, the number of valid votes that the other candidate got, was :

- A. 2500
- B. 2700
- C. 2900
- D. 3100

Answer: B

Explanation:

Total number of votes = 7500

Given that 20% of Percentage votes were invalid

=> Valid votes = 80%

Total valid votes =

1st candidate got 55% of the total valid votes.

Hence the 2nd candidate should have got 45% of the total valid votes

=> Valid votes that 2nd candidate got = total valid votes x

9. If 20% of a = b, then b% of 20 is the same as :

- A. 4% of a
- B. 6% of a

- C. 8% of a
- D. 10% of a

Answer: A

Explanation:

20% of a = b

b% of 20 = 4% of a.

10. A candidate scoring 25% in an examination fails by 30 marks , while another candidate scores 50 % mark, gets 20 marks more than the minimum pass marks . Find the minimum pass marks. Find the minimum pass percentage.

Answer:

Let x be the maximum marks,

Then $(25\% \text{ of } x) + 30 = (50\% \text{ of } x) - 20$

$$\text{\inline \Rightarrow \inline \frac{x}{4} + 30 = \frac{x}{2} - 20}$$

$$\text{\inline \Rightarrow } 2x - x = 120 + 80 \text{\inline \Rightarrow } x = 200$$

Hence maximum marks = 200

$$\text{Minimum pass marks} = \text{\inline \frac{200}{4}} + 30 = 80$$

$$\text{Hence, minimum pass marks} = \text{\inline \frac{80}{200}} \times 100 = 40\%$$

11. Fresh fruit contains 68% water and dry fruit contains 20% water. How much dry fruit can be obtained from 100 kg of fresh fruits ?

- A. 20
- B. 30
- C. 40
- D. 50

Answer: C

Explanation:

The fruit content in both the fresh fruit and dry fruit is the same.

Given, fresh fruit has 68% water.so remaining 32% is fruit content. weight of fresh fruits is 100kg

Dry fruit has 20% water.so remaining 80% is fruit content.let weight if dry fruit be y kg.

fruit % in freshfruit = fruit% in dryfruit

$$(32/100) * 100 = (80/100) * y$$

we get, $y = 40$ kg

12. The value of a machine depreciates at the rate of 10% every year. It was purchased 3 years ago. If its present value is Rs. 8748, its purchase price was :

- A. 10000
- B. 12000
- C. 14000
- D. 16000

Answer: B

Explanation: = Rs.12000

13. In a History examination, the average for the entire class was 80 marks. If 10% of the students scored 35 marks and 20% scored 90 marks, what was the average marks of the remaining students of the class ?

- A. 25
- B. 50
- C. 75
- D. 100

Answer: C

Explanation:

Let the number of students in the class be 100 and let this required average be x .

$$\text{Then, } (10 * 95) + (20 * 90) + (70 * x) = (100 * 80)$$

$$\Rightarrow 70x = 8000 - (950 + 1800) = 5250$$

$$\Rightarrow x = 75.$$

14. 270 candidates appeared for an examination, of which 252 passed. The pass percentage is:

- A. $(91 + \frac{1}{3})\%$
- B. $(93 + \frac{1}{3})\%$
- C. $(97 + \frac{1}{3})\%$
- D. $(98 + \frac{1}{3})\%$

Answer: B

Explanation:

$$\text{Pass percentage} = \frac{252}{270} * 100 = 93\frac{1}{3}\%$$

15. If the price of sugar rises from Rs. 6 per kg to Rs. 7.50 per kg, a person, to have no increase in his expenditure on sugar, will have to reduce his consumption of sugar by

- A. 15
- B. 20
- C. 25
- D. 30

Answer: B

Explanation: Let original consumption = 100 kg and new consumption = x kg,

So, Reduction in consumption = 20%.

16. If x is 80% of y , then what percent of $2x$ is y ?

- A. 65.5 %
- B. 64.5 %
- C. 63.5 %
- D. 62.5 %

Answer: D

Explanation:

$$x = 80 \% \text{ of } y$$

$$\text{Required percentage} = \% = \% = 62.5\%$$

17. Entry fee in an exhibition was Rs. 1. Later, this was reduced by 25% which increased the sale by 20%. The percentage increase in the number of visitors is :

- A. 20 %
- B. 40 %
- C. 60 %
- D. 80 %

Answer: C

Explanation:

Let the total original sale be Rs. 100. Then, original number of visitors = 100.

$$\text{New number of visitors} = 120/0.75 = 160.$$

$$\text{Increase \%} = 60 \%$$

18. A's salary is 40% of B's salary which is 25% of C's salary. What percentage of C's salary is A's salary?

- A. 10
- B. 20

C. 30

D. 40

Answer: A

Explanation:

A's Salary = 40% of B = 40% of (25% of C) = % of C = 10% of C.

19. What percent of 7.2 kg is 18 gms ?

A. .25%

B. .5%

C. .75%

D. 1%

Answer: A

Explanation:

Required percentage = $(18/7200 * 100)\% = 1/4\% = 0.25\%$

20. The population of a town was 1,60,000 three years ago, If it increased by 3%, 2.5% and 5% respectively in the last three years, then the present population in

A. 155679

B. 167890

C. 179890

D. 177366

Answer: D

Explanation:

Present population = $160000 * (1 + 3/100)(1 + 5/200)(1 + 5/100)$

= 177366.

Ratio and Proportion

1. The ratio of daily incomes of P and Q is 9 : 7 and the ratio of their expenditures is 4: 3. If each saves Rs. 200 per day, then the sum of their daily incomes is :

- A. Rs. 3,600
- B. Rs. 4,200
- C. Rs. 4,800
- D. Rs. 5,600
- E. Rs.3,200

Answer: E

2. The ratio of x and y is 9 : 16. If both x and y are increased by 15, then the ratio becomes 2:3. Find x and y.

- A. 27 and 48
- B. 36 and 48
- C. 18 and 32
- D. 24 and 36
- E. 18 and 24

Answer: A

3. If $2A = 3B = 4C$, then A : B : C is

- A. 2 : 3 : 4
- B. 4 : 3 : 2
- C. 6 : 4 : 3
- D. 3 : 4 : 6
- E. None of these

Answer: C

4. A mixture contains alcohol and water in the ratio 4 : 3. If 5 litres of water is added to the mixture, the ratio becomes 4: 5. Find the quantity of alcohol in the given mixture.

- A. 10 litres
- B. 7.5 litres
- C. 5 litres
- D. 12.5 litres
- E. None of these

Answer: A

5. In some quantity of ghee, 60% is pure ghee and 40% is Vanaspati. If 10kg of pure ghee is added, then the strength of Vanaspati ghee becomes 20%.The original quantity was?

- A. 8 kg
- B. 12 kg
- C. 10 kg
- D. 11 kg
- E. 9 kg

Answer: C

6. Three cricket players -- Ramesh, Suresh and Ganesh play for three different cricket Teams – Haryana, Delhi and Rajasthan respectively. Ramesh was born in Chennai but brought up in Karnal, Haryana. Suresh was born in Delhi and brought up in Delhi. Ganesh's fore-fathers were from Madurai but settled in Rajasthan. All the three participated in a cricket tournament. Ramesh's runs to Suresh's runs and Suresh's runs to Ganesh's runs are in the ratio 5:7. If the total runs scored by all the three players in the tournament are 327, find the total runs scored by Suresh in the tournament?

- A. 105.0
- B. 85.0
- C. 95.0
- D. 65.0
- E. 75.0

Answer: A

7. An alloy of zinc and copper contains the metals in the ratio 5 : 3. The quantity of zinc to be added to 16 kg of the alloy so that the ratio of the metal may be 3 : 1 is:

- A. 2 kg
- B. 4 kg
- C. 3 kg
- D. 8 kg
- E. None of the above

Answer: D

8. A mixture, P, of milk and water (30 litre) and a mixture, Q, of milk and water is mixed. The ratio of milk & water in P is 1: 2 and that in Q is 2:3 How much Q should be mixed so that the ratio of milk & water in the mixture is 28 : 47?

- A. 15L
- B. 25L
- C. 35L
- D. 45L
- E. None of these

Answer: D

9. The ratio of water and alcohol in two different containers is 2 : 3 and 4 : 5. In what ratio we are required to mix the mixtures of two containers in order to get the new mixture in which the ratio of alcohol and water be 7 : 5 ?

- A. 7 : 3
- B. 5 : 2
- C. 3 : 7
- D. 5 : 3
- E. None of these

Answer: D

10. Baniya sells two types of tea viz. Desi chai and Videshi chai. He sells Desi chai at Rs.18 per kg and incurs a loss of 10% whereas on selling the Videshi chai at Rs.30 per kg, he gains

20%. In what proportion should the Desi chai and Videshi chai be mixed such that he can gain a profit of 25% by selling the mixture at Rs.27.5 per kg?

- A. 3: 2
- B. 1: 5
- C. 5: 1
- D. 2: 5
- E. None of these

Answer: A

11. A and B together have Rs. 1210. If $\frac{4}{15}$ of A's amount is equal to $\frac{2}{5}$ of B's amount, how much amount does B have?

- A. Rs. 460
- B. Rs. 484
- C. Rs. 550
- D. Rs. 664

Answer: B

Explanation:

$$\frac{4}{15} A = \frac{2}{5} B$$

$$\Rightarrow A = \left(\frac{2}{5} \times \frac{15}{4} \right) B$$

$$\Rightarrow A = \frac{3}{2} B$$

$$\Rightarrow \frac{A}{B} = \frac{3}{2}$$

$$\Rightarrow A : B = 3 : 2.$$

$$\therefore \text{B's share} = \text{Rs.} \left(1210 \times \frac{2}{5} \right) = \text{Rs.} 484.$$

12. Two numbers are respectively 20% and 50% more than a third number. The ratio of the two numbers is:

- A. 2 : 5
- B. 3 : 5
- C. 4 : 5
- D. 6 : 7

Answer: C

Explanation:

Let the third number be x .

$$\text{Then, first number} = 120\% \text{ of } x = \frac{120x}{100} = \frac{6x}{5}$$

$$\text{Second number} = 150\% \text{ of } x = \frac{150x}{100} = \frac{3x}{2}$$

$$\therefore \text{Ratio of first two numbers} = \left(\frac{6x}{5} : \frac{3x}{2} \right) = 12x : 15x = 4 : 5.$$

13. A sum of money is to be distributed among A, B, C, D in the proportion of 5 : 2 : 4 : 3. If C gets Rs. 1000 more than D, what is B's share?

- A. Rs. 500
- B. Rs. 1500
- C. Rs. 2000
- D. None of these

Answer: C

Explanation:

Let the shares of A, B, C and D be Rs. $5x$, Rs. $2x$, Rs. $4x$ and Rs. $3x$ respectively.

$$\text{Then, } 4x - 3x = 1000$$

$$x = 1000.$$

$$\text{B's share} = \text{Rs. } 2x = \text{Rs. } (2 \times 1000) = \text{Rs. } 2000.$$

14. Seats for Mathematics, Physics and Biology in a school are in the ratio 5 : 7 : 8. There is a proposal to increase these seats by 40%, 50% and 75% respectively. What will be the ratio of increased seats?

- A. 2 : 3 : 4
- B. 6 : 7 : 8
- C. 6 : 8 : 9
- D. None of these

Answer: A

Explanation:

Originally, let the number of seats for Mathematics, Physics and Biology be $5x$, $7x$ and $8x$ respectively.

Number of increased seats are (140% of $5x$), (150% of $7x$) and (175% of $8x$).

$$\Rightarrow \left(\frac{140}{100} \times 5x \right), \left(\frac{150}{100} \times 7x \right) \text{ and } \left(\frac{175}{100} \times 8x \right)$$

$$\Rightarrow 7x, \frac{21x}{2} \text{ and } 14x.$$

$$\therefore \text{The required ratio} = 7x : \frac{21x}{2} : 14x$$

$$\Rightarrow 14x : 21x : 28x$$

$$\Rightarrow 2 : 3 : 4.$$

Number of increased seats are (140% of $5x$), (150% of $7x$) and (175% of $8x$).

15. In a mixture 60 litres, the ratio of milk and water 2 : 1. If this ratio is to be 1 : 2, then the quantity of water to be further added is:

- A. 20 litres
- B. 30 litres
- C. 40 litres
- D. 60 litres

Answer: D

Explanation:

$$\text{Quantity of milk} = \left(60 \times \frac{2}{3}\right) \text{ litres} = 40 \text{ litres.}$$

Quantity of water in it = (60 - 40) litres = 20 litres.

New ratio = 1 : 2

Let quantity of water to be added further be x litres.

$$\text{Then, milk : water} = \left(\frac{40}{20 + x}\right).$$

$$\text{Now, } \left(\frac{40}{20 + x}\right) = \frac{1}{2}$$

$$\Rightarrow 20 + x = 80$$

$$\Rightarrow x = 60.$$

∴ Quantity of water to be added = 60 litres.

16. The salaries A, B, C are in the ratio 2 : 3 : 5. If the increments of 15%, 10% and 20% are allowed respectively in their salaries, then what will be new ratio of their salaries?

- A. 3 : 3 : 10
- B. 10 : 11 : 20
- C. 23 : 33 : 60
- D. Cannot be determined

Answer: C

Explanation:

Let A = $2k$, B = $3k$ and C = $5k$.

$$\text{A's new salary} = \frac{115}{100} \text{ of } 2k = \left(\frac{115}{100} \times 2k\right) = \frac{23k}{10}$$

$$\text{B's new salary} = \frac{110}{100} \text{ of } 3k = \left(\frac{110}{100} \times 3k\right) = \frac{33k}{10}$$

$$\text{C's new salary} = \frac{120}{100} \text{ of } 5k = \left(\frac{120}{100} \times 5k\right) = 6k$$

$$\therefore \text{New ratio } \underline{23k} : \underline{33k} : 6k = 23 : 33 : 60$$

$$\left(\begin{array}{cc} 10 & 10 \end{array} \right)$$

17. If 40% of a number is equal to two-third of another number, what is the ratio of first number to the second number?

- A. 2 : 5
- B. 3 : 7
- C. 5 : 3
- D. 7 : 3

Answer: C

Explanation:

$$\begin{aligned} \text{Let } 40\% \text{ of } A &= \frac{2}{3} B \\ \text{Then, } \frac{40A}{100} &= \frac{2B}{3} \\ \Rightarrow \frac{2A}{5} &= \frac{2B}{3} \\ \Rightarrow \frac{A}{B} &= \left(\frac{2}{3} \times \frac{5}{2} \right) = \frac{5}{3} \\ \therefore A : B &= 5 : 3. \end{aligned}$$

18. The fourth proportional to 5, 8, 15 is:

- A. 18
- B. 24
- C. 19
- D. 20

Answer: B

Explanation:

Let the fourth proportional to 5, 8, 15 be x.

Then, $5 : 8 : 15 : x$

$$\Rightarrow 5x = (8 \times 15)$$

$$x = \frac{(8 \times 15)}{5} = 24.$$

19. Two number are in the ratio 3 : 5. If 9 is subtracted from each, the new numbers are in the ratio 12 : 23. The smaller number is:

- A. 27
- B. 33
- C. 49
- D. 55

Answer: B

Explanation:

Let the numbers be $3x$ and $5x$.

Then, $\frac{3x - 9}{5x - 9} = \frac{12}{23}$

$$\Rightarrow 23(3x - 9) = 12(5x - 9)$$

$$\Rightarrow 9x = 99$$

$$\Rightarrow x = 11.$$

$$\therefore \text{The smaller number} = (3 \times 11) = 33.$$

20. In a bag, there are coins of 25 p, 10 p and 5 p in the ratio of 1 : 2 : 3. If there is Rs. 30 in all, how many 5 p coins are there?

- A. 50
- B. 100
- C. 150
- D. 200

Answer: C

Explanation:

Let the number of 25 p, 10 p and 5 p coins be x , $2x$, $3x$ respectively.

$$\text{Then, sum of their values} = \text{Rs. } \underline{25x} + \underline{10 \times 2x} + \underline{5 \times 3x} = \text{Rs. } \underline{60x}$$

$$\therefore \frac{60x}{100} = 30 \quad \Leftrightarrow \quad x = \frac{30 \times 100}{60} = 50.$$

Hence, the number of 5 p coins = $(3 \times 50) = 150$.

Averages:

1. Average of all prime numbers between 30 to 50

- A. 37
- B. 37.8
- C. 39
- D. 39.8

Answer: D

Explanation:

Prime numbers between 30 and 50 are:

31, 37, 41, 43, 47

Average of prime numbers between 30 to 50 will be

$$(31+37+41+43+47) \div 5 = 195 \div 5 = 39.8$$

$$(31+37+41+43+47) \div 5 = 195 \div 5 = 39.8$$

2. Reeya obtained 65, 67, 76, 82 and 85 out of 100 in different subjects, What will be the average.

- A. 70
- B. 75
- C. 80

D. 85

Answer: B

Explanation:

$$(65+67+76+82+855)=75$$

$$(65+67+76+82+855)=75$$

3. Find the sum of first 30 natural numbers

A. 470

B. 468

C. 465

D. 463

Answer: C

Explanation:

Sum of n natural numbers

$$=n(n+1)2$$

$$=n(n+1)2$$

$$=30(30+1)2=30(31)2=465$$

$$=30(30+1)2=30(31)2=465$$

4. Find the average of first 10 multiples of 7

A. 35.5

B. 37.5

C. 38.5

D. 40.5

Answer: C

Explanation:

$$=7(1+2+3+\dots+10)10$$

$$=7(1+2+3+\dots+10)10$$

$$=7(10(10+1))10 \times 2$$

$$=7(10(10+1))10 \times 2$$

$$=7(110)10 \times 2 = 38.5$$

$$=7(110)10 \times 2 = 38.5$$

5. The average of four consecutive odd numbers is 24. Find the largest number.

A. 25

B. 27

C. 29

D. 31

Answer: B

Explanation:

Let the numbers are $x, x+2, x+4, x+6$, then

$$\Rightarrow x+(x+2)+(x+4)+(x+6)4=24$$

$$\Rightarrow x+(x+2)+(x+4)+(x+6)4=24$$

$$\Rightarrow 4x+12)4=24$$

$$\Rightarrow 4x+12)4=24$$

$$\Rightarrow x+3=24 \Rightarrow x=21$$

$$\Rightarrow x+3=24 \Rightarrow x=21$$

So largest number is $21 + 6 = 27$

6. Average of 10 numbers is zero. At most how many numbers may be greater than zero

- A. 0
- B. 1
- C. 5
- D. 9

Answer: D

7. Find the average of all numbers between 6 and 34 which are divisible by 5

- A. 15
- B. 20
- C. 25
- D. 30

Answer: B

Explanation:

$$\text{Average} = \frac{(10+15+20+25+30)}{5} = \frac{100}{5} = 20$$

8. A batsman makes a score of 87 runs in the 17th inning and thus increases his average by 3. Find his average after 17th inning?

Answer: Let the average after 7th inning = x

Then average after 16th inning = x - 3

$$\therefore 16(x-3)+87 = 17x$$

$$\therefore x = 87 - 48 = 39$$

9. The average of 20 numbers is zero. Of them, at the most, how many may be greater than zero ?

- A. 0

- B. -1
- C. 1
- D. none of these

Answer: A

Explanation:

Average of 20 numbers = 0.

Sum of 20 numbers = $(0 * 20) = 0$.

It is quite possible that 19 of these numbers may be positive and if their sum is a, then 20th number is $(- a)$.

10. The average of runs of a cricket player of 10 innings was 32. How many runs must he make in his next innings so as to increase his average of runs by 4 ?

- A. 76
- B. 79
- C. 85
- D. 87

Answer: A

Explanation:

Average = total runs / no.of innings = 32

So, total = Average x no.of innings = $32 \times 10 = 320$.

Now increase in avg = 4runs. So, new avg = $32+4 = 36$ runs

Total runs = new avg x new no. of innings = $36 \times 11 = 396$

Runs made in the 11th inning = $396 - 320 = 76$

11. The average weight of 8 persons increases by 2.5 kg when a new person comes in place of one of them weighing 65 kg. What might be the weight of the new person ?

- A. 70 kg
- B. 75 kg
- C. 80 kg
- D. 85 kg

Answer: D

Explanation:

Total weight increased = (8×2.5) kg = 20 kg.

Weight of new person = $(65 + 20)$ kg = 85 kg.

12. A grocer has a sale of Rs 6435, Rs. 6927, Rs. 6855, Rs. 7230 and Rs. 6562 for 5 consecutive months. How much sale must he have in the sixth month so that he gets an average sale of Rs, 6500 ?

- A. 4991
- B. 5467
- C. 5987
- D. 6453

Answer: A

Explanation:

Total sale for 5 months = Rs. $(6435 + 6927 + 6855 + 7230 + 6562)$ = Rs. 34009.

Required sale = Rs. $[(6500 \times 6) - 34009]$

= Rs. $(39000 - 34009)$

= Rs. 4991.

13. Average of first five multiples of 3 is

- A. 9
- B. 11

C. 13

D. 15

Answer: A

Explanation:

$$\text{Average} = \frac{3(1+2+3+4+5)}{5} = \frac{45}{5} = 9$$

$$\text{Average} = \frac{3(1+2+3+4+5)}{5} = \frac{45}{5} = 9$$

14. Average age of boys in a class is 16 years and average age of girls is 15 years, what is the average age of all

A. 15.5

B. 15

C. 16

D. Cant be computed

Answer: D

Explanation:

As number of girls and boys is not given so result cant be computed

15. A library has an average of 510 visitors on Sundays and 240 on other day. The average number of visitors in a month of 30 days starting with sunday is

A. 280

B. 285

C. 290

D. 295

Answer: B

Explanation:

As the month begin with sunday, so there will be five sundays in the month. So result will be:

$$=(510 \times 5 + 240 \times 2530) = (855030) = 285$$

$$=(510 \times 5 + 240 \times 2530) = (855030) = 285$$

16. A batsman makes a score of 87 runs in the 17th match and thus increases his average by 3. Find his average after 17th match

- A. 36
- B. 37
- C. 38
- D. 39

Answer: D

Explanation:

Let the average after 17th match is x

then the average before 17th match is $x-3$

$$\text{so } 16(x-3) + 87 = 17x$$

$$\Rightarrow x = 87 - 48 = 39$$

17. Average weight of 10 people increased by 1.5 kg when one person of 45 kg is replaced by a new man. Then weight of the new man is

- A. 50
- B. 55
- C. 60
- D. 65

Answer: C

Explanation:

Total weight increased is $1.5 * 10 = 15$.

So weight of new person is $45+15 = 60$

18. Average of five numbers is 27. If one number is excluded the average becomes 25. The excluded number is

- A. 35
- B. 45
- C. 55
- D. 65

Answer: A

Explanation: Number is $(5 \times 27) - (4 \times 25) = 135 - 100 = 35$

19. The average score of a cricketer for ten matches is 38.9 runs. If the average for first six matches is 42, then average for last four matches is

- A. 33.25
- B. 32.25
- C. 34.25
- D. 34.50

Answer: C

Explanation:

$$=(38.9 \times 10) - (42 \times 6)4$$

$$=(38.9 \times 10) - (42 \times 6)4$$

$$=(1216 - 750)4 = 34.25$$

20. The average of five consecutive odd numbers is 61. What is the difference between the highest and lowest numbers?

- A. 4

- B. 8
- C. 12
- D. 16

Answer: B

Explanation:

Let the numbers be x , $x + 2$, $x + 4$, $x + 6$ and $x + 8$.

Then $[x + (x + 2) + (x + 4) + (x + 6) + (x + 8)] / 5 = 61$.

or $5x + 20 = 305$ or $x = 57$.

So, required difference = $(57 + 8) - 57 = 8$

Problems on Ages

1. Raju age after 15 years will be 5 times his age 5 years back, What is the present age of Raju

- A. 15
- B. 14
- C. 10
- D. 8

Answer: C

Explanation:

Clearly,

$$x+15 = 5(x-5)$$

$$\Leftrightarrow 4x = 40 \Rightarrow x = 10$$

2. Sachin is younger than Rahul by 7 years. If the ratio of their ages is 7:9, find the age of Sachin

- A. 23.5
- B. 24.5
- C. 12.5
- D. 14.5

Answer: B

Explanation:

If Rahul age is x , then Sachin age is $x-7$,

$$\text{so } (x-7)/x = 7/9$$

$$\Rightarrow 9x-63 = 7x$$

$$\Rightarrow 2x = 63$$

$$\Rightarrow x = 31.5$$

So Sachin age is $31.5 - 7 = 24.5$

3. The ratio between the present ages of P and Q is 6:7. If Q is 4 years old than P, what will be the ratio of the ages of P and Q after 4 years

- A. 7:8
- B. 7:9
- C. 3:8
- D. 5:8

Answer: A

Explanation:

Let P age and Q age is $6x$ years and $7x$ years.

$$\text{Then } 7x - 6x = 4 \Leftrightarrow x = 4$$

So required ratio will be $(6x+4) : (7x+4) \Rightarrow 28:32 \Rightarrow 7:8$

4. Ages of two persons differ by 16 years. If 6 year ago, the elder one be 3 times as old the younger one, find their present age

- A. 12,28
- B. 14,30
- C. 16,32
- D. 18,34

Answer: B

Explanation:

Let the age of younger person is x ,

Then elder person age is $(x+16)$

$\Rightarrow 3(x-6) = (x+16-6)$ [6 years before]

$\Rightarrow 3x-18 = x+10$

$\Rightarrow x = 14.$

So other person age is $x + 16 = 30$

5. The sum of the ages of a father and son is 45 years. Five years ago, the product of their ages was four times the fathers age at that time. The present age of father and son

- A. 34,11
- B. 35,10
- C. 36,9
- D. 40,5

Answer: C

Explanation:

Let sons age = x years. Then fathers age = $(45 - x)$ years.

$(x-5)(45-x-5) = 4(45-x-5)$ hence $(x-5) = 4$ so $x = 9$

Their ages are 36 years and 9 years.

6. Ten years ago, P was half of Q in age. If the ratio of their present ages is 3:4, what will be the total of their present ages

- A. 35
- B. 34
- C. 45
- D. 25

Answer: A

Explanation:

Let the present age of P and Q be $3x$ and $4x$ respectively.

Ten years ago, P was half of Q in age

$$\Rightarrow 2(3x - 10) = (4x - 10)$$

$$\Rightarrow 6x - 20 = 4x - 10$$

$$\Rightarrow 2x = 10$$

$$\Rightarrow x = 5$$

7. The total age of A and B is 12 years more than the total age of B and C. C is how many year younger than A

- A. 11
- B. 12
- C. 13
- D. 14

Answer: B

Explanation:

Given that $A+B = 12 + B + C$

$$\Rightarrow A - C = 12 + B - B = 12$$

\Rightarrow C is younger than A by 12 years

8. A person's present age is two-fifth of the age of his mother. After 8 years, he will be one-half of the age of his mother. How old is the mother at present

- A. 38
- B. 40
- C. 42
- D. 44

Answer: B

Explanation:

Let the mother's present age be x years.

Then, the person's present age = $(\frac{2}{5}x)$ years.

$$\Rightarrow (\frac{2}{5}x + \frac{8}{2}) = 1(x + 8)$$

$$\Rightarrow 2(2x + 40) = 5(x + 8)$$

$$\Rightarrow x = 40$$

9. The sum of the present ages of a father and his son is 60 years. Six years ago, father's age was five times the age of the son. After 6 years, son's age will be

- A. 15 years
- B. 18 years
- C. 20 years
- D. 22 years

Answer: C

Explanation:

$$\text{Clue : } (60 - x) - 6 = 5(x - 6)$$

10. Which of following statements are required to answer the Actual age of Abhinav ?

1. Five years ago, Abhinav's age was double that of his son's age at that time.
2. Present ages of Abhinav and his son are in the ratio of 11 : 6 respectively.
3. Five years hence, the respective ratio of Abhinav age and his son's age will become 12 : 7.

- A. 1 and 3
- B. 2 and 3
- C. Any two of three
- D. None of three

Answer: C

Explanation:

From 2nd we get, Present ages of Abhinav and his son is $11x$ and $6x$,

From 1st we get, Abhinav's present age = $2 * \text{Son's age}$

From 3rd we get, 5 years hence, Abhinav age / Son's age = $12 / 7$

From clearly we can get Abhinav age from any of two equations.

11. The ages of two persons differ by 16 years. 6 years ago, the elder one was 3 times as old as the younger one. What are their present ages of the elder person

- A. 15
- B. 20
- C. 25
- D. 30

Answer: D

Explanation:

Let's take the present age of the elder person = x

and the present age of the younger person = $x - 16$

$$(x - 6) = 3(x - 16 - 6)$$

$$\Rightarrow x - 6 = 3x - 66$$

$$\Rightarrow 2x = 60$$

$$\Rightarrow x = 60/2 = 30$$

12. The ages of two persons differ by 20 years. If 5 years ago, the elder one be 5 times as old as the younger one, their present ages (in years) are respectively

- A. 20,20
- B. 20,10
- C. 25,15
- D. 30,10

Answer: D

Explanation:

Let their ages be x and $(x + 20)$ years.

$$5(x - 5) = (x + 20 - 5) \text{ or } 4x = 40 \text{ or } x = 10.$$

Their present ages are 30 years and 10 years

13. Ratio between Rahul and Deepak is 4:3, After 6 Years Rahul age will be 26 years. What is Deepak present age.

- A. 14
- B. 15
- C. 20
- D. 22

Answer: B

Explanation:

Present age is $4x$ and $3x$,

$$\Rightarrow 4x + 6 = 26 \Rightarrow x = 5$$

So Deepak age is $= 3(5) = 15$

14. Sachin was twice as old as Ajay 10 years back. How old is Ajay today if Sachin will be 40 years old 10 years hence

- A. 18
- B. 25
- C. 15
- D. 20

Answer: D

Explanation:

Sachin's age today = 30 years.

Sachin's age 10 years back = 20 years.

Ajay's age 10 years back = 10 years.

Ajay's age today = 20 years

15. In 10 years, A will be twice as old as B was 10 years ago. If A is now 9 years older than B, the present age of B is

- A. 35
- B. 37
- C. 39
- D. 41

Answer: C

Explanation:

Let B's age = x years.

Then, A's age = $(x + 9)$ years.

$$(x + 9 + 10) = 2(x - 10)$$

hence $x = 39$.

Present age of B = 39 years

16. Ten years ago A was half of B in age. If the ratio of their present ages is 3 : 4, what will be the total of their present ages

- A. 30
- B. 35
- C. 37
- D. 41

Answer: B

Explanation:

Let A's age 10 years ago = x years.

Then, B's age 10 years ago = 2x years.

$$(x + 10) / (2x + 10) = 3/4$$

$$\Rightarrow x = 5.$$

So, the total of their present ages = $(x + 10 + 2x + 10)$

$$= (3x + 20) = 35 \text{ years.}$$

17. Sushil was thrice as old as Snehal 6 years back. Sushil will be times as old as Snehal 6 years hence. How old is Snehal today

- A. 12
- B. 16
- C. 18
- D. 24

Answer: A

Explanation:

Let Snehal's age 6 years back = x.

Then, Sushil's age 6 years back = 3x.

$$(5/3) * (x + 6 + 6) = (3x + 6 + 6)$$

$$\text{So } 5(x + 12) = 3(3x + 12),$$

$$\text{so } x = 6.$$

Snehal Age = $(x + 6)$ years = 12 years

18. A man is 24 years older than his son. In two years, his age will be twice the age of his son. The present age of his son is

- A. 20 years
- B. 21 years
- C. 22 years

D. 24 years

Answer: C

Explanation:

Let the son's present age be x years. Then, man's present age = $(x + 24)$ years

$$\Rightarrow (x + 24) + 2 = 2(x + 2)$$

$$\Rightarrow x + 26 = 2x + 4$$

$$\text{So, } x = 22$$

19. Ratio of ages of three persons is 4:7:9, Eight years ago, the sum of their ages was 56. Find their present ages.

A. 16,35,36

B. 12,28,36

C. 16,28,27

D. 16,28,36

Answer: D

Explanation:

Let the present ages are $4x$, $7x$, $9x$.

$$\Rightarrow (4x-8) + (7x-8) + (9x-8) = 56$$

$$\Rightarrow 20x = 80$$

$$\Rightarrow x = 4$$

So their present ages are: 16,28,36

20. A man is 24 years older than his son. In two years, his age will be twice the age of his son. The present age of this son is

A. 21 years

B. 22 years

C. 23 years

D. 24 years

Answer: B

Explanation:

Let's Son age is x , then Father age is $x+24$.

$$\Rightarrow 2(x+2) = (x+24+2)$$

$$\Rightarrow 2x+4 = x+26$$

$$\Rightarrow x = 22 \text{ years}$$

Profit and Loss

1. A pair of articles was bought for Rs. 37.40 at a discount of 15%. What must be the marked price of each of the articles ?

- A. Rs15
- B. Rs 20
- C. Rs 22
- D. Rs 25

Answer: C

Explanation:

As question states that rate was of pair of articles,

$$\text{So rate of One article} = 37.40/2 = \text{Rs. } 18.70$$

Let Marked price = Rs X

$$\text{then } 85\% \text{ of } X = 18.70$$

$$\Rightarrow X = 1870/85 = 22$$

2. A shopkeeper fixes the marked price of an item 35% above its cost price. The percentage of discount allowed to gain 8% is

- A. 18%
- B. 20%
- C. 22%

D. 24%

Answer: B

Explanation:

Let the cost price = Rs 100

then, Marked price = Rs 135

Required gain = 8%,

So Selling price = Rs 108

Discount = $135 - 108 = 27$

Discount% = $(27/135) \times 100 = 20\%$

3. Which among following options are true relating to this question :

Ram sold a card and makes 20% profit out of it, how much profit he actually earned ?

1. Difference between cost price of card and selling price of card is Rs. 40.

2. Selling price of card is 120% of cost price of card.

- A. Either 1 and 2 are sufficient to answer
- B. Either 1 and 2 are not sufficient to answer
- C. 1 is sufficient to answer alone, 2 is not sufficient to answer
- D. 2 is sufficient to answer alone, 1 is not sufficient to answer

Answer: C

Explanation:

From the question it is clear that, Gain is 20%

From 1, it is clear that S.P. - C.P. = 40, so it is sufficient to get answer.

While 2 is not sufficient to get answer.

4. A fruit seller sells mangoes at the rate of Rs.9 per kg and thereby loses 20%. At what price per kg, he should have sold them to make a profit of 5%

- A. Rs 8.81

- B. Rs 9.81
- C. Rs 10.81
- D. Rs 11.81

Answer: D

Explanation:

$$85 : 9 = 105 : x$$

$$x = (9 \times 105 / 85)$$

$$= \text{Rs } 11.81$$

5. A producer of tea blends two varieties of tea from two tea gardens one costing Rs 18 per kg and another Rs 20 per kg in the ratio 5 : 3. If he sells the blended variety at Rs 21 per kg, then his gain percent is

- A. 12%
- B. 13%
- C. 14%
- D. 15%

Answer: A

Explanation:

Suppose he bought 5 kg and 3 kg of tea.

$$\text{Cost Price} = \text{Rs. } (5 \times 18 + 3 \times 20) = \text{Rs. } 150.$$

$$\text{Selling price} = \text{Rs. } (8 \times 21) = \text{Rs. } 168.$$

$$\text{Profit} = 168 - 150 = 18$$

$$\text{So, Profit \%} = (18/150) * 100 = 12\%$$

6. A shopkeeper sold an article for Rs 2564.36. Approximately what was his profit percent if the cost price of the article was Rs 2400

- A. 4%
- B. 5%
- C. 6%

D. 7%

Answer: D

Explanation:

$$\text{Gain \%} = (164.36 * 100 / 2400) = 6.84 \% = 7\% \text{ approx.}$$

7. A man gains 20% by selling an article for a certain price. If he sells it at double the price, the percentage of profit will be.

- A. 130%
- B. 140%
- C. 150%
- D. 160%

Answer: B

Explanation:

Let the C.P. = x ,

Then S.P. = $(120/100)x = 6x/5$

New S.P. = $2(6x/5) = 12x/5$

Profit = $12x/5 - x = 7x/5$

Profit% = $(\text{Profit}/\text{C.P.}) * 100$

$$\Rightarrow (7x/5) * (1/x) * 100 = 140 \%$$

8. If the cost price of 12 pens is equal to the selling price of 8 pens, the gain percent is ?

- A. 12%
- B. 30%
- C. 50%
- D. 60%

Answer: C

Explanation:

Friends, we know we will need gain amount to get gain percent, right. So let's get gain first.



Let the cost price of 1 pen is Re 1

Cost of 8 pens = Rs 8

Selling price of 8 pens = 12

Gain = $12 - 8 = 4$

9. In a certain store, the profit is 320% of the cost. If the cost increases by 25% but the selling price remains constant, approximately what percentage of the selling price is the profit

- A. 70%
- B. 80%
- C. 90%
- D. None of above

Answer: A

Explanation:

Let C.P.= Rs. 100.

Then, Profit = Rs. 320,

S.P. = Rs. 420.

New C.P. = 125% of Rs. 100 = Rs. 125

New S.P. = Rs. 420.

Profit = Rs. $(420 - 125) = \text{Rs. } 295$

Required percentage = $(295/420) * 100$

= 70%(approx)

10. If the cost price of 12 items is equal to the selling price of 16 items, the loss percent is

- A. 20%
- B. 25%
- C. 30%
- D. 35%

Answer: B

Explanation:

Let the Cost Price of 1 item = Re. 1

Cost Price of 16 items = 16

Selling Price of 16 items = 12

Loss = 16 - 12 = Rs 4

Loss % = $(4/16) * 100 = 25\%$

11. A man bought an article and sold it at a gain of 5 %. If he had bought it at 5% less and sold it for Re 1 less, he would have made a profit of 10%. The C.P. of the article was

- A. Rs 100
- B. Rs 150
- C. Rs 200
- D. Rs 250

Answer: C

Explanation:

Let original Cost price is x

Its Selling price = $105/100 * x = 21x/20$

New Cost price = $95/100 * x = 19x/20$

New Selling price = $110/100 * 19x/20 = 209x/200$

$[(21x/20) - (209x/200)] = 1$

$\Rightarrow x = 200$

12. A man buys an item at Rs. 1200 and sells it at the loss of 20 percent. Then what is the selling price of that item

- A. Rs. 660
- B. Rs. 760
- C. Rs. 860

D. Rs. 960

Answer: D

Explanation:

Here always remember, when ever x% loss,

it means S.P. = $(100 - x)\%$ of C.P

when ever x% profit,

it means S.P. = $(100 + x)\%$ of C.P

So here will be $(100 - x)\%$ of C.P.

= 80% of 1200

= $80/100 * 1200$

= 960

13. Sahil purchased a machine at Rs 10000, then got it repaired at Rs 5000, then gave its transportation charges Rs 1000. Then he sold it with 50% of profit. At what price he actually sold it.

A. Rs. 22000

B. Rs. 24000

C. Rs. 26000

D. Rs. 28000

Answer: B

Explanation:

Question seems a bit tricky, but it is very simple.

Just calculate all Cost price, then get 150% of CP.

C.P. = $10000 + 5000 + 1000 = 16000$

150% of 16000 = $150/100 * 16000 = 24000$

14. A plot is sold for Rs. 18,700 with a loss of 15%. At what price it should be sold to get profit of 15%.

- A. Rs 25300
- B. Rs 22300
- C. Rs 24300
- D. Rs 21300

Answer: A

Explanation:

This type of question can be easily and quickly solved as following:

Let at Rs x it can earn 15% profit

$$85:18700 = 115:x \text{ [as, loss} = 100 - 15, \text{ Profit} = 100 + 15]$$

$$x = (18700 \times 115) / 85$$

$$= \text{Rs.}25300$$

15. In terms of percentage profit, which among following the best transaction.

- A. C.P. 36, Profit 17
- B. C.P. 50, Profit 24
- C. C.P. 40, Profit 19
- D. C.P. 60, Profit 29

Answer: D

Explanation:

Hint: Calculate profit percent as

$$\text{Profit}\% = (\text{profit}/\text{cost}) * 100$$

16. If the cost price is 25% of selling price. Then what is the profit percent.

- A. 150%
- B. 200%

- C. 300%
- D. 350%

Answer: C

Explanation:

Let the S.P = 100

then C.P. = 25

Profit = 75

Profit% = $75/25 * 100 = 300\%$

17. The cost price of 20 articles is the same as the selling price of x articles. If the profit is 25%, then the value of x is:

- A. 15
- B. 16
- C. 18
- D. 25

Answer: B

Explanation:

Let C.P. of each article be Re. 1 C.P. of x articles = Rs. x.

S.P. of x articles = Rs. 20.

Profit = Rs. (20 - x).

$$\therefore \left(\frac{20 - x}{x} \times 100 = 25 \right)$$

$$\Rightarrow 2000 - 100x = 25x$$

$$125x = 2000$$

$$\Rightarrow x = 16.$$

18. In a certain store, the profit is 320% of the cost. If the cost increases by 25% but the selling price remains constant, approximately what percentage of the selling price is the profit?

- A. 30%
- B. 70%

- C. 100%
- D. 250%

Answer: B

Explanation:

Let C.P. = Rs. 100. Then, Profit = Rs. 320, S.P. = Rs. 420.

New C.P. = 125% of Rs. 100 = Rs. 125

New S.P. = Rs. 420.

Profit = Rs. (420 - 125) = Rs. 295.

$$\text{Required percentage} = \left(\frac{295}{420} \times 100 \right) \% = \frac{1475}{21} \% = 70\% \text{ (approximately).}$$

19. A vendor bought toffees at 6 for a rupee. How many for a rupee must he sell to gain 20%?

- A. 3
- B. 4
- C. 5
- D. 6

Answer: C

Explanation:

C.P. of 6 toffees = Re. 1

S.P. of 6 toffees = 120% of Re. 1 = Rs. $\frac{6}{5}$

For Rs. $\frac{6}{5}$, toffees sold = 6.

For Re. 1, toffees sold = $\left(6 \times \frac{5}{6} \right) = 5$.

20. The percentage profit earned by selling an article for Rs. 1920 is equal to the percentage loss incurred by selling the same article for Rs. 1280. At what price should the article be sold to make 25% profit?

- A. Rs. 2000
- B. Rs. 2200
- C. Rs. 2400
- D. Data inadequate

Answer: A

Explanation:

Let C.P. be Rs. x .

$$\text{Then, } \frac{1920 - x}{x} \times 100 = \frac{x - 1280}{x} \times 100$$

$$\Rightarrow 1920 - x = x - 1280$$

$$\Rightarrow 2x = 3200$$

$$\Rightarrow x = 1600$$

$$\therefore \text{ Required S.P.} = 125\% \text{ of Rs. } 1600 = \text{Rs. } \left(\frac{125}{100} \times 1600 \right) = \text{Rs } 2000.$$

Speed And Time Distance:

1. A person crosses a 600 m long street in 5 minutes. What is his speed in km per hour?

- A. 3.6
- B. 7.2
- C. 8.4
- D. 10

Answer: B

Explanation: Speed = $(600/5 \times 60)$ m/sec.

$$= 2 \text{ m/sec.}$$

Converting m/sec to km/hr

$$=(2 \times 18/5) \text{ km/hr}$$

$$= 7.2 \text{ km/hr.}$$

2. An aeroplane covers a certain distance at a speed of 240 kmph in 5 hours. To cover the same distance in 1 hours, it must travel at a speed of:

- A. 300 kmph
- B. 360 kmph
- C. 600 kmph
- D. 720 kmph

Answer: D

Explanation:

$$\text{Distance} = (240 \times 5) = 1200 \text{ km.}$$

$$\text{Speed} = \text{Distance/Time}$$

$$\text{Speed} = 1200/(5/3) \text{ km/hr.}$$

$$\text{Required speed} = (1200 \times 3/5) \text{ km/hr} = 720 \text{ km/hr.}$$

3. If a person walks at 14 km/hr instead of 10 km/hr, he would have walked 20 km more. The actual distance travelled by him is:

- A. 50 km
- B. 56 km
- C. 70 km
- D. 80 km

Answer: A

Explanation:

Let the actual distance travelled be x km.

Then, $(x/10) = ((x + 20)/14)$

$$\Rightarrow 14x = 10x + 200$$

$$\Rightarrow 4x = 200$$

Therefore $x = 50$ km.

4. A train can travel 50% faster than a car. Both start from point A at the same time and reach point B 75 kms away from A at the same time. On the way, however, the train lost about 12.5 minutes while stopping at the stations. The speed of the car is:

- A. 100 kmph
- B. 110 kmph
- C. 120 kmph
- D. 130 kmph

Answer: C

Explanation:

Let speed of the car be x kmph.

Then, speed of the train = $(150/100)x = (3/2)x$ kmph.

Therefore $(75/x) - (75/(3/2)x) = (125/10 \times 60)$

$$\Rightarrow (75/x) - (50/x) = 5/24$$

$$= 120 \text{ kmph.}$$

5. Excluding stoppages, the speed of a bus is 54 kmph and including stoppages, it is 45 kmph. For how many minutes does the bus stop per hour?

- A. 9
- B. 10
- C. 12
- D. 20

Answer: B

Explanation:

Due to stoppages, it covers 9 km less.

Time taken to cover 9 km = $((9/54) \times 60\text{min}) = 10 \text{ min.}$

6. How many minutes does Aditya take to cover a distance of 400 m, if he runs at a speed of 20 km/hr

- A. 115min
- B. 215min
- C. 315min
- D. 415min

Answer: A

Explanation:

We know that, $\text{Time} = \text{Distance} \times \text{Speed}$

Speed = 20 km/hr

= $20 \times 518 \text{ m/sec}$

= 509 m/sec

Time = (400×950)

= 72 sec

= 115 min

7. A cyclist covers a distance of 750 meter in 2 minutes 30 seconds. What is the speed in km/hr of cyclist

- A. 16 km/hr
- B. 17 km/hr
- C. 18 km/hr

D. 19 km/hr

Answer: C

Explanation: Speed=Distance*Time

Distance=750meter

Time=2 min 30

sec=150sec

Speed=750*150

=5m/sec

=>5*185km/hr

=18km/hr

8. A car moves at 80 km/hr. What is the speed of the car in meters per second ?

A. 2029msec

B. 2229msec

C. 2429msec

D. 2629msec

Answer: B

Explanation:

Speed=(80*518)m/sec

=2009m/sec

=2229msec

9. An athlete runs 200 meters in 24 seconds. His speed is ?

A. 10 km/hr

B. 17 k/hr

C. 27 km/hr

D. 30 km/hr

Answer: D

Explanation: Speed=Distance/Time

$$=200*24\text{m/sec}$$

$$=253\text{m/sec}$$

$$253*185\text{km/hr}$$

$$=30\text{km/hr}$$

10. A person crosses a 600 meter long street in 5 minutes. What is the speed in Km/hr

A. 6.2 km/hr

B. 7.2 km/hr

C. 8.2 km/hr

D. 9.2 km/hr

Answer: B

Explanation:

Two things to give attention on this question.

First time is in minutes, we need to change it to seconds to get speed in m/sec, then we need to get the final answer in km/hr.

So lets solve this.

$$=650\text{meter}$$

$$\text{Time}=5$$

$$\text{minutes}=300\text{sec}$$

$$\text{Speed}=600$$

$$300=2\text{m/sec}$$

$$\Rightarrow 2*185\text{km/hr}$$

=7.2km/hr

11. A man is walking at the rate of 5 km/hr crosses a bridge in 15 minutes. The length of the bridge is

- A. 1000 meters
- B. 1050 meters
- C. 1200 meters
- D. 1250 meters

Answer: D

Explanation:

We need to get the answer in meters. So we will first of change distance from km/hour to meter/sec by multiplying it with 5/18 and also change 15 minutes to seconds by multiplying it with 60.

Speed=5*5/18=2518m/sec

Time=15*60seconds

=900seconds

Distance=Time*Speed

Distance=2518*900

=1250meter

12. A train covers a distance in 50 minutes, if it runs at a speed of 48kmph on an average. Find the speed at which the train must run to reduce the time of journey to

- A. 40 minutes.
- B. 50 km/hr
- C. 60 km/hr
- D. 65 km/hr
- E. 70 km/hr

Answer: B

Explanation:

We are having time and speed given, so first we will calculate the distance. Then we can get new speed for given time and distance.

Lets solve it.

$$\text{Time} = 50/60 \text{ hr} = 5/6 \text{ hr}$$

$$\text{Speed} = 48 \text{ mph}$$

$$\text{Distance} = S * T = 48 * 5/6 = 40 \text{ km}$$

New time will be 40 minutes so,

$$\text{Time} = 40/60 \text{ hr} = 2/3 \text{ hr}$$

Now we know,

$$\text{Speed} = \text{Distance}/\text{Time}$$

$$\text{New speed} = 40 * 3/2 \text{ kmph} = 60 \text{ kmph}$$

13. In a flight of 600 km, an aircraft was slowed down due to bad weather. Its average speed for the trip was reduced by 200 km/hr and the time of flight increased by 30 minutes. The duration of the flight is:

- A. 1 hour
- B. 2 hours
- C. 3 hours
- D. 4 hours

Answer: A

Explanation: Let the duration of the flight be x hours.

$$\text{Then, } (600/x) - (600/x + (1/2)) = 200$$

$$\Rightarrow (600/x) - (1200/2x + 1) = 200$$

$$\Rightarrow x(2x + 1) =$$

$$\Rightarrow 2x^2 + x - 3 = 0$$

$$\Rightarrow (2x + 3)(x - 1) = 0$$

Therefore $x = 1$ hr.

14. A man complete a journey in 10 hours. He travels first half of the journey at the rate of 21 km/hr and second half at the rate of 24 km/hr. Find the total journey in km.

- A. 220 km
- B. 224 km
- C. 230 km
- D. 234 km

Answer: B

Explanation:

$$\Rightarrow ((1/2)x/21) + ((1/2)x/24) = 10$$

$$\Rightarrow (x/21) + (x/24) = 20$$

$$\Rightarrow 15x = 168 \times 20$$

$$\Rightarrow x = (168 \times 20/15) = 224 \text{ km.}$$

15. The ratio between the speeds of two trains is 7 : 8. If the second train runs 400 km in 4 hours, then the speed of the first train is:

- A. 70 km/hr
- B. 75 km/hr
- C. 84 km/hr
- D. 87.5 km/hr

Answer: D

Explanation: Let the speed of two trains be $7x$ and $8x$ km/hr.

$$\text{Then, } 8x = (400/4) = 100$$

$$x = (100/8) = 12.5$$

Therefore Speed of first train = (7×12.5) km/hr = 87.5 km/hr.

16. A man on tour travels first 160 km at 64 km/hr and the next 160 km at 80 km/hr. The average speed for the first 320 km of the tour is:

- A. 35.55 km/hr
- B. 36 km/hr
- C. 71.11 km/hr
- D. 71 km/hr

Answer: C

Explanation:

$$= \text{Total time taken} = (160/64) + (160/80) \text{ hrs.} = 9/2 \text{ hrs.}$$

$$\text{Therefore Average speed} = (320 \times 2/9) \text{ km/hr} = 71.11 \text{ km/hr.}$$

17. A car travelling with $\frac{5}{7}$ of its actual speed covers 42 km in 1 hr 40 min 48 sec. Find the actual speed of the car.

- A. $17 \frac{6}{7}$ km/hr
- B. 25 km/hr
- C. 30 km/hr
- D. 35 km/hr

Answer: D

Explanation:

$$\text{Time taken} = 1 \text{ hr } 40 \text{ min } 48 \text{ sec} = 1 \text{ hr } 40 \frac{4}{5} \text{ min} = 1 \frac{51}{75} \text{ hrs} = \frac{126}{75} \text{ hrs.}$$

Let the actual speed be x km/hr.

$$\text{Then, } \frac{5}{7}x \times \frac{126}{75} = 42$$

$$x = (42 \times 7 \times 75/5 \times 126) = 35 \text{ km/hr.}$$

18. In covering a distance of 30 km, Abhay takes 2 hours more than Sameer. If Abhay doubles his speed, then he would take 1 hour less than Sameer. Abhay's speed is:

- A. 5 kmph
- B. 6 kmph
- C. 6.25 kmph
- D. 7.5 kmph

Answer: A

Explanation: Let Abhay's speed be x km/hr.

Then, $30/x - 30/2x = 3$

$$6x = 30$$

$$x = 5 \text{ km/hr.}$$

19. Robert is travelling on his cycle and has calculated to reach point A at 2 P.M. if he travels at 10 kmph, he will reach there at 12 noon if he travels at 15 kmph. At what speed must he travel to reach A at 1 P.M.?

- A. 8 kmph
- B. 11 kmph
- C. 12 kmph
- D. 14 kmph

Answer: C

Explanation:

Let the distance travelled by x km.

Then, $x/10 - x/15 = 2$

$$= 3x - 2x = 60$$

$$= x = 60 \text{ km.}$$

Time taken to travel 60 km at 10 km/hr = $(60/10)$ hrs= 6 hrs.

So, Robert started 6 hours before 2 P.M. i.e., at 8 A.M.

Required speed = $(60/5)$ kmph.= 12 kmph.

20. A farmer travelled a distance of 61 km in 9 hours. He travelled partly on foot @ 4 km/hr and partly on bicycle @ 9 km/hr. The distance travelled on foot is:

- A. 14 km
- B. 15 km
- C. 16 km
- D. 17 km

Answer: C

Explanation:

Let the distance travelled on foot be x km.

Then, distance travelled on bicycle = $(61 - x)$ km.

$$\text{So, } x/4 + (61 - x)/9 = 9$$

$$9x + 4(61 - x) = 9 \times 36$$

$$\Rightarrow 5x = 80$$

Therefore x = 16 km.

[Number Series :](#)

1. 125, 80, 45, 20, ?

- A. 5
- B. 8
- C. 10
- D. 12

Answer: A

Explanation: The pattern is - 45, - 35, - 25,

So, missing term = $20 - 15 = 5$.

2. 120, 99, 80, 63, 48, ?

- A. 35
- B. 38
- C. 39
- D. 40

Answer: A

Explanation: The pattern is - 21, - 19, - 17, - 15,

So, missing term = $48 - 13 = 35$.

3. 120, 99, 80, 63, 48, ?

- A. 35
- B. 38
- C. 39
- D. 40

Answer: A

Explanation: The pattern is - 21, - 19, - 17, - 15,

So, missing term = $48 - 13 = 35$.

Therefore 8th term = $ar^{8-1} = ar^7 = 2 \times 3^7 = (2 \times 2187) = 4374$.

4. 589654237, 89654237, 8965423, 965423, ?

- A. 58965
- B. 65423
- C. 89654
- D. 96542

Answer: D

Explanation:

The digits are removed one by one from the beginning and the end in order alternately so as to obtain the subsequent terms of the series.

5. 3, 10, 101, ?

- A. 10101
- B. 10201
- C. 10202
- D. 11012

Answer: C

Explanation:

Each term in the series is obtained by adding 1 to the square of the preceding term.

So, missing term = $(101)^2 + 1 = 10202$.

6. 13, 32, 24, 43, 35, ?, 46, 65, 57, 76

- A. 45
- B. 52
- C. 54
- D. 55

Answer: C

Explanation:

The given sequence is a combination of two series:

I. 13, 24, 35, 46, 57 and II. 32, 43, ?, 65, 76

The pattern in both I and II is + 11. So, missing term = $43 + 11 = 54$.

7. 22, 24, 28, ?, 52, 84

- A. 36
- B. 38
- C. 42
- D. 46

Answer: A

Explanation:

The pattern is + 2, + 4, + 8, + 16,.....

So, missing term = $28 + 8 = 36$.

8. 3, 15, ?, 63, 99, 143

- A. 27
- B. 35
- C. 45
- D. 56

Answer: B

Explanation:

The terms of the given series are $(2^2 - 1)$, $(4^2 - 1)$,....., $(8^2 - 1)$, $(10^2 - 1)$, $(12^2 - 1)$.

So, missing term = $(6^2 - 1) - (36 - 1) = 35$.

9. 90, 180, 12, 50, 100, 200, ?, 3, 50, 4, 25, 2, 6, 30, 3

- A. 150
- B. 175
- C. 225
- D. 250

Answer: A

Explanation:

Clearly, $90 = 30 \times 3$, $180 = 6 \times 30$, $12 = 2 \times 6$, $50 = 25 \times 2$, $100 = 4 \times 25$, $200 = 50 \times 4$.

So, missing term = $3 \times 50 = 150$.

10. 48, 24, 96, 48, 192, ?

- A. 76
- B. 90
- C. 96
- D. 98

Answer: C

Explanation:

The pattern is $\div 2, \times 4, \div 2, \times 4, \dots$

So, missing term = $192 \div 2 = 96$.

11. 121, 143, 165, 186, 209

- A. 143
- B. 165
- C. 186
- D. 209

Answer: C

Explanation:

Each term in the series is obtained by adding 22 to the preceding term.

So, 186 is wrong and must be replaced by $(165 + 22)$ i.e. 187.

12. 6, 15, 35, 77, 165, 221

- A. 35
- B. 77
- C. 165
- D. 15

Answer: C

Explanation:

The terms of the series are products of two consecutive prime numbers i.e. (2×3) , (3×5) , (5×7) , (7×11) ,.....

So, 165 is wrong and must be replaced by (11×13) i.e. 143.

13. 8, 13, 21, 32, 47, 63, 83

- A. 13
- B. 21
- C. 32
- D. 47

Answer: D

Explanation:

The correct pattern is $+ 5$, $+ 8$, $+ 11$, $+ 14$,.....

So, 47 is wrong and must be replaced by $(32 + 14)$ i.e. 46.

14. 1, 2, 4, 8, 16, 32, 64, 96

- A. 4
- B. 32
- C. 64
- D. 96

Answer: D

Explanation:

Each term of the series is obtained by multiplying the preceding term by 2.

So, 96 is wrong and must be replaced by (64×2) i.e. 128.

15. 3, 4, 10, 32, 136, 685, 4116

- A. 10
- B. 32
- C. 136
- D. 4116

Answer: B

Explanation:

The correct pattern is $x 1 + 1, x 2 + 2, x 3 + 3, x 4 + 4, \dots$

So, 32 is wrong and must be replaced by $(10 \times 3 + 3)$ i.e. 33.

16. ADVENTURE, DVENTURE, DVENTUR,?, VENTU

- A. DVENT
- B. VENTURE
- C. VENTUR
- D. DVENTU
- E. None of these

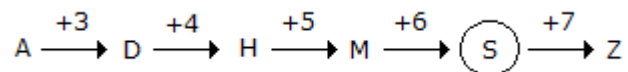
Answer: C

17. A, D, H, M, ?, Z

- A. T
- B. G
- C. N
- D. S

Answer: D

Explanation:



18. PERPENDICULAR, ERPENDICULA, RPENDICUL, ?

- A. PENDICUL
- B. PENDIC
- C. ENDIC
- D. ENDICU
- E. None of these

Answer: E

Explanation: Each term of the series is obtained by removing two letters from the preceding term one from the beginning and one from the end, So, the missing term is PENDICU.

19. Z, ?, T, ?, N, ?, H, ?, B

- A. W, Q, K, E
- B. W, R, K, E
- C.
- D.
- E. X, Q, K, E
- F. X, R, K, E

Answer: A

Explanation:

Z $\xrightarrow{-6}$ T $\xrightarrow{-6}$ N $\xrightarrow{-6}$ H $\xrightarrow{-6}$ B

Z $\xrightarrow{-3}$ (W) $\xrightarrow{-3}$ T $\xrightarrow{-3}$ (Q) $\xrightarrow{-3}$ N $\xrightarrow{-3}$ (K) $\xrightarrow{-3}$ H $\xrightarrow{-3}$ (E) $\xrightarrow{-3}$ B

20. ejo tyd ins xch ?

- A. Nrw

- B. Mrw
- C. Msx
- D. Nsx
- E. nsw

Answer: B

Explanation: There is a gap of four letters between the first and second, the second and third letters of each term, and also between the last letter of a term and the first letter of the next term.

Number System:

1. The sum of the digits of a two-digit number is 6. If the digits are reversed, the number is decreased by 36. Find the number?

- A. 15
- B. 51
- C. 24
- D. 42
- E. None of these

Answer: B

Explanation :

$$a + b = 6$$

$$(10a + b) - (10b + a) = 36, a - b = 4$$

We get $a = 5$ and $b = 1$

So number is 51

2. If the places of last two-digits of a three digit number are interchanged, a new number greater than the original number by 36 is obtained. What is the difference between the last two digits of that number?

- A. 2
- B. 3
- C. 4
- D. 7
- E. None of these

Answer: C

Explanation :

let the number be $100a + 10b + c$

$$(100a + 10b + c) - (100a + 10c + b) = 36$$

$$b - c = 4$$

3. A number when divided by 837 leaves a remainder of 79. What will be the remainder when the same number is divided by 31?

- A. 11
- B. 13
- C. 15
- D. 17
- E. None of these

Answer: D

Explanation :

$$\text{Number} = 837 \cdot a + 79$$

when this number is divided by 31, it leaves remainder of 17 (837 is completely divisible)

4. The numerator of a rational number is 4 less than the denominator. If the numerator is increased by 15 and denominator is decreased by 4, we get 6. Find the rational number?

- A. $1/5$
- B. $2/7$
- C. $3/7$
- D. $5/9$
- E. None of these

Answer: C

Explanation :

let the fraction is $(p-4)/p$

now, $(p - 4 + 15)/(p-4) = 6$

we get $p = 7$

so fraction = $3/7$

5. When a number is added to 20 percent of the second number, we get 150 percent of the second number. Find the ratio between the first and second number?

- A. 13:9
- B. 12:10
- C. 13:10
- D. 17:10
- E. None of these

Answer: C

Explanation :

$$a + (20/100)*b = (150/100)*b$$

$$a:b = 13:10$$

6. Two different numbers when divided by same divisor leaves remainder 7 and 9 respectively. When their sum is divided by the same divisor remainder was 4. Find the divisor?

- A. 11
- B. 12
- C. 13
- D. 14
- E. None of these

Answer: B

Explanation :

Let first number $N_1 = D*a + 7$

and second number $N_2 = D*b + 9$

$N_1 + N_2 = (a+b)*D + 16$

Remainder is 4, so D will be 12

7. A number gets reduced to its two-third when 24 is subtracted from it. Find one-eighth of the number?

- A. 7
- B. 8
- C. 9
- D. 10
- E. None of these

Answer: C

Explanation :

$a - 24 = 2a/3$

we get $a = 72$

so one-eighth of the number = $72/8 = 9$

8. Three numbers are in the ratio 4:3:5. If the difference between thrice the third number and the sum of first and second number is 64. Find the difference between the first and third number?

- A. 4
- B. 8
- C. 12
- D. 16
- E. None of these

Answer: B

Explanation :

$$15x - (7x) = 64, \text{ we get } x = 8$$

$$\text{difference between first and third number} = 5x - 4x = x = 8$$

9. One-fifth of a number when subtracted from one – third of the number gives 24. Find the square of the number.

- A. 32400
- B. 28900
- C. 14400
- D. 36100
- E. None of these

Answer: A

Explanation :

$$a/3 - a/5 = 24$$

$$a = 180, \text{ so square} = 32400$$

10. 25% of a number is 2 times 65% of another number. Find the ratio of the second no to the first number?

- A. 13:5
- B. 5:26
- C. 7:13
- D. 26:5
- E. None of these

Answer: B

Explanation :

$$(25/100)*a = 2*(65/100)*b$$

$$b : a = 5 : 26$$

11. The sum of 3 consecutive even number is 40 more than the average of these numbers. Which of the following is the 2nd largest number ?

- A. 18
- B. 20
- C. 22
- D. 24

Answer: B

Explanation :

$$X+x+2+x+4 = 40+(x+x+2+x+4)/3$$

$$3x+6 = 40+ (3x+6)/3$$

$$(9x+18 - 3x-6)/3= 40$$

$$6x + 12 = 120$$

$$X = 108/6 = 18$$

$$18+2 = 20$$

12. The sum of 3 consecutive number is 1251, Find the largest even number ?

- A. 420
- B. 414
- C. 418
- D. 416

Answer: C

Explanation :

$$X+x+1+x+2 = 1251$$

$$3x+3 = 1251$$

$$X = 1248/3 = 416$$

$$X+2 = 416+2 = 418$$

13. What is the least number that can be added to 7218 make it a perfect square ?

- A. 7
- B. 5
- C. 6
- D. 4

Answer: A

Explanation:

$$85*85 = 7225$$

14. If $a = -2$ and $b = -5$ then find the value of $a^3 + b^3 - a^2 + b^2 + 2a - 3b$

- A. -98
- B. -100
- C. 101
- D. -101

Answer: D

Explanation :

$$a^3 + b^3 - a^2 + b^2 + 2a - 3b$$

$$(-2)^3 + (-5)^3 - (-2)^2 + (-5)^2 + 2(-2) - 3(-5) = -8 -125 -4 +25 -4 +15 = -101$$

15. $x+(1/x) = 2$, then find the value of $x^{10} + (-1/x)^{10}$

- A. 0
- B. 1
- C. 2
- D. 3

Answer: C

Explanation :

$$X^2+1 = 2x$$

$$X^2- 2x+1 = 0$$

$$X= 1$$

$$X^{10} + (-1/x)^{10} = 1+1 = 2$$

16. The average of 7 consecutive number is n, if the next 2 number also included then the new average will be increased by ?

- A. 0
- B. 1
- C. 2
- D. 3

Answer: B

Explanation:

$$\text{Avg of 7 no} = (7+1)/2 = 8/2 = 4$$

$$\text{Avg of 9 no} = (9+1)/2 = 5$$

$$5- 4 = 1$$

Hence increased by 1

17. When a positive number n is divided by 7 leaves the remainder 2, when 3n is divided by the same number, then the remainder is

- A. 4
- B. 5
- C. 6
- D. 8

Answer: C

Explanation :

$$N = 7+2 = 9$$

$$3n = 27$$

$$27/7 = 6$$

18. The number of prime factors of 510510

- A. 4
- B. 5
- C. 6
- D. 7

Answer: D

Explanation: $2*3*5*7*11*13*17 = 510510$

19. Which one cannot be the square of a natural number ?

- A. 2116
- B. 2304
- C. 2202
- D. 2209

Answer: C

Explanation: Square number can never end in 2,7

20. Two different numbers are divided by the same divisor and left remainder 11 and 17 respectively and when their sum was divided by the same divisor, remainder was 4. What is the divisor?

- A. 20
- B. 24
- C. 25
- D. 26
- E. 28
- F. None of these

Answer: B

Explanation:

Let the divisor = D

so, first number = $D*a + 11$ and second number = $D*b + 17$

so sum of numbers = $D*(a + b) + 28$

given that remainder is 4 so, the number is 24

Time And Work:

1. Kiran can do a work in 25 days, while Ravi can do the same work in 50 days. They started the work jointly. Few days later Sumit also joined them and thus all of them completed the whole work in 10 days. All of them were paid total Rs.600. What is the Share of Sumit?

- A. Rs.360
- B. Rs.385
- C. Rs.240
- D. can't be determined
- E. None of these

Answer: C

Explanation:

Efficiency of Kiran = 4%

Efficiency of Ravi = 2%

$[(4+2)*10] = 60\%$

The remaining work done by Sumit = 40%.

40% of 600 = 240

2. Working together Bala and Chitra take 50% more number of days than Angel, Bala and Chitra together take and Angel and Bala working together, take $\frac{8}{3}$ more number of days than Angel, Bala and Chitra take together. If Angel, Bala and Chitra all have worked together till the completion of the work and Bala has received Rs.120 out of total earnings of Rs. 480 then in how many days did Angel, Bala and Chitra together complete the whole work?

- A. 2 days
- B. 4 days
- C. 6 days
- D. 8 days
- E. 5 day

Answer: E

Explanation:

The days ratio of (Angel + Bala + Chitra) : (Bala + Chitra) = $X:3X/2 = 2X:3x$;

Efficiency ratio = $3X:2X$

Efficiency of Angel = x .

$(480/3X) = \text{Rs.}160$

Amount received by Bala = Rs.120 & Chitra = 200

$160:120:200 = 4:3:5$

$1/4:1/3:1/5 = 15:20:12$;

$(1/15+1/12+1/20)*Y = 1$

$Y = 5$ days

3. Angel can do a piece of work in 10 days, Balu in 15 days. They work together for 5 days, the rest of the work is finished by Chitra in two more days. If they get Rs. 6000 as wages for the whole work, what are the daily wages of Angel, Bala and Chitra respectively?

- A. 200, 250, 300
- B. 300, 200, 250
- C. 600, 400, 200
- D. 600, 400, 500
- E. None of these

Answer: D

Explanation:

Angel's 5 days work = 50%

Balu's 5 days work = 33.33%

Chitra's 2 days work = 16.66% [100- (50+33.33)] Ratio of work of Angel, Balu and Chitra = 3: 2: 1

Angel's total share = Rs. 3000

Balu's total share = Rs. 2000

Chitra's total share = Rs. 1000

Angel's one day's wage = Rs.600

Balu's one day's wage = Rs.400

Chitra's one day's wage = Rs.500

4. Ravi can do a piece of work in 16 days. Rakesh can do the same work in $\frac{64}{5}$ days, while Geeta can do it in 32 days. All of them started to work together but Ravi leaves after 4 days. Rakesh leaves the job 3 days before the completion of the work. How long would the work last?

- A. 6 days
- B. 9 days
- C. 18 days
- D. 5 days
- E. None of these

Answer: B

Explanation :

Let the work lasted for x days,

Ravi's 4 day's work + Rakesh (x - 3) day's work + Geeta's x day's work = 1

$$\Rightarrow \frac{4}{16} + \frac{(x - 3)}{\frac{64}{5}} + \frac{x}{32} = 1$$

$$\Rightarrow \frac{5(x - 3)}{64} + \frac{x}{32} = 1 - \frac{1}{4}$$

$$\Rightarrow \frac{[5(x - 3) + 2x]}{64} = \frac{3}{4}$$

$$\Rightarrow 7x - 15 = 48$$

$$\therefore x = \frac{(48 + 15)}{7} = \frac{63}{7} = 9 \text{ days}$$

5. Ramu, Hari and Sanjay are three typists, who working simultaneously, can type 228 pages in four hours. In one hour, Sanjay can type as many pages more than Hari as Hari can type more than Ramu. During a period of five hours, Sanjay can type as many passages as Ramu can, during seven hours. How many pages does each of them type per hour?

- A. 16, 18, 22
- B. 14, 17, 20
- C. 15, 17, 22
- D. 15, 18, 21
- E. 16, 19, 22

Answer: E

Explanation :

Let Rohit, Harsh and Sanjeev can type x , y and z pages respectively in 1 h.

Therefore, they together can type $4(x + y + z)$ pages in 4 h

$$\therefore 4(x + y + z) = 228$$

$$\Rightarrow x + y + z = 57 \dots\dots(i)$$

Also, $z - y = y - x$

i.e., $2y = x + z \dots\dots(ii)$

$$5z = 7x \dots\dots(iii)$$

From Eqs. (i) and (ii), we get

$$3y = 57$$

$$\Rightarrow y = 19$$

From Eq. (ii), $x + z = 38$

$$x = 16 \text{ and } z = 22$$

6. Efficiency of A is 25% more than B and B takes 25 days to complete a piece of work. A started a work alone and then B joined her 5 days before actual completion of the work. For how many days A worked alone?

- A. 9
- B. 11
- C. 10
- D. 25
- E. 12

Answer: B

Explanation :

Efficiency (A : B) = 5 : 4

Number of days(A : B) = $4x : 5x = 4x : 25$

\therefore Number of days required by A to finish the work alone = $4x$
 $= 4 \times 5 = 20$.

A and B work together for last 5 days = $5 \times 9 = 45\%$

Efficiency of A = 5% and B's efficiency = 4%

\therefore No. of days taken by A to complete 55% work = $55/5 = 11$ days

7. In a cucumber factory, there are equal number of women and children. Women work for 8 h a day and children for 6 h a day. During festival time, the work load goes up by 50%. The government rule does not allow children to work for more than 8 h a day. If they are equally efficient and the extra work is done by women, then extra hours of work put in by women every day are?

- A. 5
- B. 3
- C. 4
- D. 9
- E. None of these

Answer: A

Explanation:

Let extra hours a day are x .

According to the formula,

$$(M_1D_1T_1) / W_1 = (M_2D_2T_2) / W_2$$

$$\Rightarrow [1 \times 1 \times (8 + 6)] / 1 = [1 \times 1 \times (8 + 8 + x)] / 3/2$$

$$\Rightarrow (3/2) \times 14 = 16 + x$$

$$\Rightarrow 21 = 16 + x$$

$$\therefore x = 21 - 16 = 5$$

8. A building contractor undertook to finish a certain work in 162 days and employed 150 men. After 72 days, he found that he had already done 2/3 of the work. How many men can be discharged now, so that the work finish in time?

- A. 80
- B. 75
- C. 90
- D. 70
- E. 65

Answer: C

Explanation:

$$M_1 = 150, M_2 = 150 - n, D_1 = 72, D_2 = 90$$

$$W_1 = 2/3 \text{ and } W_2 = 1/3$$

According to the formula,

$$(M_1D_1) / W_1 = (M_2D_2) / W_2$$

$$\Rightarrow [150 \times 72] / 2 = [(150 - n) \times 90] / 1$$

$$\Rightarrow (150 \times 72) / (2 \times 60) = (150 - n)$$

$$\Rightarrow (150 - n) = 60$$

$$\therefore n = 150 - 60 = 90$$

9. Sanjay can do a piece of work in 50 days. He started the work and left after some days, when 25% work was done. After it Ajit joined and completed it working for 25 days. In how many days Sanjay and Ajit can do the complete work, working together?

- A. 6
- B. 8
- C. 10
- D. 12
- E. 20

Answer: E

Explanation:

Efficiency of Sanjay = $(100/50) = 2\%$

Rest work = 75%

∴ Efficiency of Ajit = $75/25 = 3\%$

∴ Combined efficiency of Sanjay and Ajit = 5%

∴ Number of days required by Sonu and Abhijeet, to work together = $100/5 = 20$ days.

10. Kiran can do a piece of work in 9 days and Kumar can do the same work in 18 days. They started the work. After 3 days Sanjay joined them, who can complete alone the same whole work in 3 days. What is the total number of days in which they had completed the work?

- A. 12
- B. 8
- C. 4
- D. 6
- E. None of these

Answer: C

Explanation:

Efficiency of Kiran and Kumar = $11.11 + 5.55 = 16.66\%$

Work done in 3 days = $3 \times 16.66 = 50\%$

Rest work done by Kiran, Kumar and Sanjay = $50/50 = 1$ day

Work can be completed in 4 days.

11. A and B complete a work in 6 days. A alone can do it in 10 days. If both together can do the work in how many days?

- A. 3.75 days
- B. 4 days
- C. 5 days
- D. 6 days

Answer: A

Explanation:

$$1/6 + 1/10 = 8/30 = 4/15$$

$$15/4 = 3.75 \text{ days}$$

12. A and B together can do a piece of work in 8 days. If A alone can do the same work in 12 days, then B alone can do the same work in?

- A. 20 days
- B. 16 days
- C. 24 days
- D. 28 days

Answer: C

Explanation:

$$B = 1/8 - 1/12 = 1/24 \Rightarrow 24 \text{ days}$$

13. A can do a piece of work in 4 days. B can do it in 5 days. With the assistance of C they completed the work in 2 days. Find in how many days can C alone do it?

- A. 10 days
- B. 20 days
- C. 5 days

D. 4 days

Answer: B

Explanation:

$$\frac{3}{20} * 2 + (2 + x)/5 = 1$$

$$x = 1 \frac{1}{2} \text{ days}$$

14. A and B can do a piece of work in $6 \frac{2}{3}$ days and 5 days respectively. They work together for 2 days and then A leaves. In how many days after that B will complete the work alone.

A. 2 days

B. $1 \frac{1}{2}$ days

C. 3 days

D. $3 \frac{1}{2}$ days

Answer: B

Explanation:

$$\frac{3}{20} * 2 + (2 + x)/5 = 1$$

$$x = 1 \frac{1}{2} \text{ days}$$

15. A can do a piece of work in 30 days. He works at it for 5 days and then B finishes it in 20 days. In what time can A and B together it?

A. $16 \frac{2}{3}$ days

B. $13 \frac{1}{3}$ days

C. $17 \frac{1}{3}$ days

D. $16 \frac{1}{2}$ days

Answer: B

Explanation:

$$\frac{5}{30} + \frac{20}{x} = 1$$

$$x = 24$$

$$1/30 + 1/24 = 3/40$$

$$40/3 = 13 \frac{1}{3} \text{ days}$$

16. A can do a piece of work in 12 days. When he had worked for 2 days B joins him. If the complete work was finished in 8 days. In how many days B alone can finish the work?

- A. 18 days
- B. 12 days
- C. 24 days
- D. 10 days

Answer: A

Explanation:

$$8/12 + 6/x = 1$$

$$X = 18 \text{ days}$$

17. A and B together can do a work in 6 days. If A alone can do it in 15 days. In how many days can B alone do it?

- A. 10
- B. 15
- C. 12
- D. 16

Answer: A

Explanation:

$$1/6 - 1/15 = 1/10$$

18. A can do a piece of work in 15 days and B in 20 days. They began the work together but 5 days before the completion of the work, A leaves. The work was completed in?

- A. 8 days
- B. 10 days
- C. 15 days
- D. $11 \frac{3}{7}$ days

Answer: D

Explanation:

$$(x - 5)/15 + x/20 = 1$$

$$x = 11 \frac{3}{7} \text{ days}$$

19. A, B and C can do a piece of work in 24, 30 and 40 days respectively. They start the work together but C leaves 4 days before the completion of the work. In how many days is the work done?

- A. 15 days
- B. 14 days
- C. 13 days
- D. 11 days

Answer: D

Explanation:

$$x/24 + x/30 + x/40 = 1$$

$$x = 11 \text{ days}$$

20. A is thrice as efficient as B and is, therefore, able to finish a piece of work 10 days earlier than B. In how many days A and B will finish it together?

- A. $3 \frac{1}{2}$ days
- B. $3 \frac{4}{5}$ days

C. 3 days

D. 5 days

Answer: D

Explanation:

$$WC = 3:1$$

$$WT = 1:3$$

$$x \quad 3x$$

$$1/x - 1/3x = 1/10$$

$$x = 20/3$$

$$3/20 + 1/20 = 1/5 \Rightarrow 5 \text{ days}$$

Algebra:

1. $-3ab + 4ac - 2ad = -(3ab - 4ac + 2ad)$

A. True

B. False

Answer: A

2. A father gave \$500 to his two sons. He gave X dollars to one son. Which of the following expressions correctly shows the amount he gave to the other.

A. $500 + X$

B. $500 \div X$

C. $500 \times X$

D. $500 - X$

Answer: D

3. Solve X where $5X = 20$.

- A. 4
- B. 5
- C. 10
- D. 15

Answer: A

4. Solve X where $X - 5 = 15$.

- A. 10
- B. 15
- C. 20
- D. 25

Answer: C

5. Solve X where $3X + 7 - 2 = 8$.

- A. 1
- B. 2
- C. 3
- D. 4

Answer: A

6. Irene is N years old. If Tom is twice as old, which of the following algebraic statements shows his age now?

- A. $2N$
- B. $2N + X$
- C. $2 - N$
- D. $N - 2$

Answer: A

7. John has B bats and buys C bats more. He then gives away D bats. Which of the following algebraic statements correctly shows how many bats John has left?



- A. $D - BC$
- B. $B - C - D$
- C. $B + C - D$
- D. $B + D + C$

Answer: C

8. What is the representation algebraically of the cost of X feet of lumber at Y dollars per foot?

- A. $X + Y$
- B. XY
- C. X / Y
- D. $X - Y$

Answer: B

9. $3x + 6x =$

- A. $3x$
- B. $9 + 2x$
- C. $9x$
- D. $9x + 2$

Answer: C

10. $5a + 2b - b + 4a =$

- A. $9a + b$
- B. $a + b$
- C. $7a - 3b$
- D. $6a$

Answer: A

11. Find the value of $3abc$, where $a=2$, $b=3$ and $c=4$.

- A. 12



- B. 27
- C. 72
- D. 82

Answer: C

12. The sum of a certain number and 3 times the number is 40. What is the number?

- A. 8
- B. 9
- C. 10
- D. 11

Answer: C

13. Find the amount of i in $i = jte$ where $j = \$500$, $t = 6\%$ and $e = 4$ years.

- A. 1.2
- B. 12
- C. 120
- D. 1,200

Answer: C

14. In $V = mbr$, V is which of the following?

- A. Constant
- B. Dependent Variable
- C. Independent Variable

Answer: B

15. In $B = 3t$, 3 is which of the following?

- A. Constant
- B. Dependent Variable
- C. Independent Variable

Answer: A

16. $V = bdt$. Solve the formula for d .

- A. $d = b/tv$
- B. $d = t/bv$
- C. $d = vbt$
- D. $d = v/bt$

Answer: D

17. $B = 1/2hm$. Solve the formula for h .

- A. $h = 1/2Bm$
- B. $h = 2B/m$
- C. $h = 2m/B$
- D. $h = 2Bm$

Answer: B

18. The absolute value of -14 is 14 .

- A. True
- B. False

Answer: A

19. $-3 + (-14) =$

- A. -11
- B. -17
- C. 42
- D. -42

Answer: B

20. $20 - (-6) =$

- A. 26
- B. - 26
- C. 14
- D. 120

Answer: A

Geometry:

1. A simple closed curve made up of only _____ is called a polygon .

- A. curves
- B. line segments
- C. lines
- D. closed curves

Answer: B

2. A polygon with minimum number of sides is

- A. Pentagon
- B. Square
- C. triangle
- D. angle

Answer: C

3. Polygons that have no portions of their diagonals in their exteriors are called

- A. Squares
- B. triangles

- C. convex
- D. concave

Answer: C

4. Polygons that have any portions of their diagonals in their exteriors are called

- A. Squares
- B. triangles
- C. convex
- D. concave

Answer: D

5. All the sides of a regular polygon are _____.

- A. Parallel
- B. equal in length
- C. not parallel
- D. not equal

Answer: B

6. All the angles of a regular polygon are of _____.

- A. 90°
- B. 60°
- C. equal measure
- D. equal length

Answer: C

7. Sum of all interior angles of a polygon with (n) sides is given by

- A. $(n - 2) \times 180^\circ$
- B. $n - 2 \times 180^\circ$
- C. $(n + 2) \times 180^\circ$
- D. $n + 2 \times 180^\circ$

Answer: A

8. Maximum number of right angles in a right angled triangle are

- A. 2
- B. 1
- C. 3
- D. 0

Answer: B

9. Sum of all interior angles of a parallelogram is

- A. 180°
- B. 360°
- C. 540°
- D. 240°

Answer: B

10. The angle sum of all interior angles of a convex polygon of sides 7 is

- A. 180°
- B. 540°
- C. 630°

D. 900°

Answer: D

11. Each exterior angle of a regular hexagon is of measure

A. 120°

B. 80°

C. 100°

D. 60°

Answer: D

12. The number of sides in a regular polygon is 15, then measure of each exterior angle is

A. 24°

B. 36°

C. 20°

D. 18°

Answer: A

13. The measure of each interior angle of a regular polygon is 140° , then number of sides that regular polygon has _____

A. 15

B. 12

C. 9

D. 10

Answer: C

14. The value of x in the following figure is

- A. 120°
- B. 80°
- C. 100°
- D. 60°

Answer: C

15. A quadrilateral which has 2 pairs of equal adjacent sides but unequal opposite sides is called _____ .

- A. parallelogram
- B. rhombus
- C. kite
- D. square

Answer: D

16. The value of x in the following figure is

- A. 100°
- B. 90°
- C. 108°
- D. 12°

Answer: D

17. The value of x in the following figure is

- A. 120°
- B. 180°

C. 60°

D. 100°

Answer: C

18. A parallelogram each of whose angles measures 90° is _____.

A. rectangle

B. rhombus

C. kite

D. trapezium

Answer: C

19. A parallelogram whose all sides are equal is called

A. square

B. rhombus

C. rectangle

D. trapezium

Answer: C

20. the diagonals of a rhombus bisect each other at _____ angles.

A. acute

B. right

C. obtuse

D. reflex

Answer: A

Trigonometry:

1. If $y = \cos x$, then what is the maximum value of y ?

- A. 1
- B. -1
- C. π
- D. 2π

Answer: A

2. What is the period of the trigonometric function given by $f(x) = 2 \sin(5x)$?

- A. $\pi/5$
- B. $2\pi/5$
- C. 5π
- D. π

Answer: B

3. What is the amplitude of the function $f(x) = -3\cos(\pi x)$?

- A. 3
- B. -3
- C. π
- D. 2

Answer: A

4. Which of the following functions has the greatest period?

- A. $f(x) = 20 \sin(2x - \pi/2)$

- B. $f(x) = -\sin(\pi x)$
- C. $f(x) = 2 \sin(0.1 x)$
- D. $f(x) = -\sin(0.1 \pi x)$

Answer: C

5. What is the range of the function $f(x) = -4 \cos(2x - 3)$?

- A. $(0, 4)$
- B. $[0, 4]$
- C. $(-4, 4)$
- D. $[-4, 4]$

Answer: D

6. What is the phase shift of the function $f(x) = 7\sin(2x - \pi / 3)$?

- A. $\pi / 3$
- B. $\pi / 6$
- C. $-\pi / 6$
- D. $-\pi / 3$

Answer: B

7. What is the range of the function $f(x) = -6 \cos(\pi x - \pi/2) + 2$?

- A. $[-6, 6]$
- B. $[-4, 8]$
- C. $[0, 8]$
- D. $[-6, 0]$

Answer: B

8. What is the amplitude of $f(x) = 4 \sin(x) \cos(x)$?

- A. 4
- B. 3
- C. 2
- D. 1

Answer: C

9. What is the period of $f(x) = 0.5 \sin(x) \cos(x)$?

- A. 0.5
- B. 2π
- C. $\pi/2$
- D. π

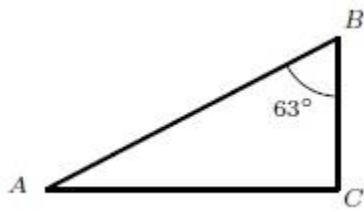
Answer: B

10. What is the amplitude of $f(x) = \sin(x) + \cos(x)$?

- A. $\sqrt{2}$
- B. $\sqrt{2}/2$
- C. $2\sqrt{2}$
- D. 2

Answer: D

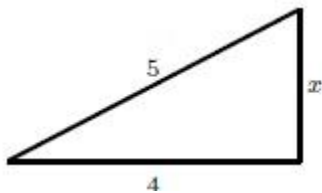
11. 11. What is the measure of angle A in the right triangle below?



- A. 17°
- B. 27°
- C. 17°
- D. 90°

Answer: B

12. What is the value of x in the figure below?



- A. 1
- B. 9
- C. 20
- D. 3

Answer: D

13. In a right triangle, the measure of one of the angles is 49° and the hypotenuse has a length of 50 cm. Which of the following is the nearest approximation to the length, in cm, of the leg opposite to this angle?

- A. 32.8

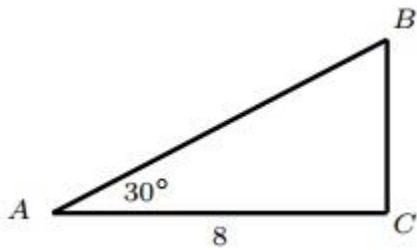
B. 57.5

C. 37.7

D. 30.3

Answer: C

14. In the triangle ABC below, angle A measures 30° and the length of AC is 8 units. Find the length of BC.



A. $8/\sqrt{3}$

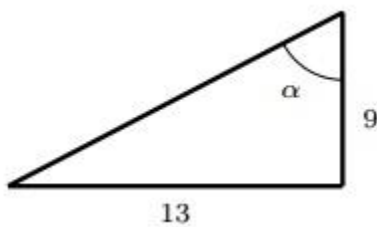
B. $4/\sqrt{3}$

C. 4

D. 8

Answer: A

15. In the triangle below, what is $\sin \alpha$?



A. $13/9$

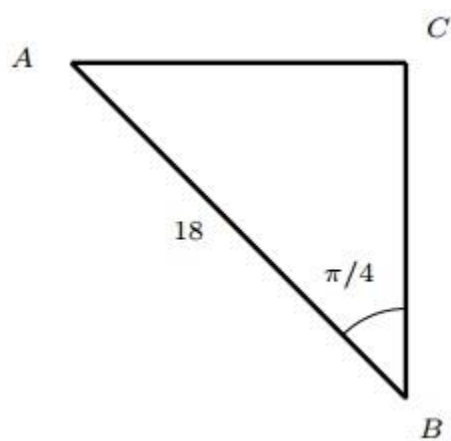
B. $9/13$

C. $13\sqrt{10}/50$

D. $13/24$

Answer: C

16. Find the length of AC in the right triangle below?



A. 9

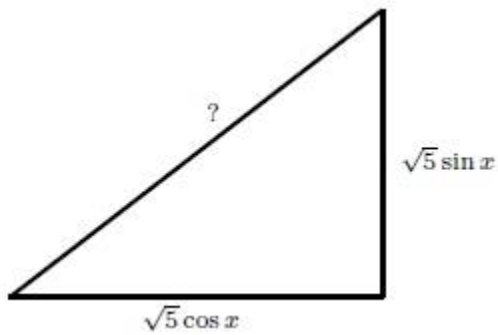
B. $9\sqrt{2}$

C. $18\sqrt{2}$

D. 18

Answer: B

17. Find the length of the hypotenuse in the right triangle below where x is a real number?



- A. 5
- B. 10
- C. 25
- D. $\sqrt{5}$

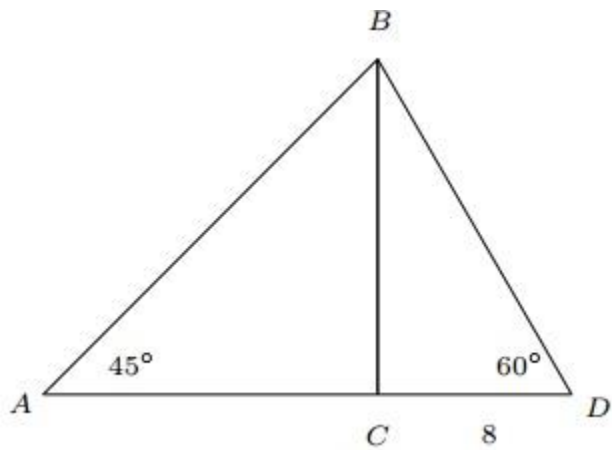
Answer: D

18. Find the area of a square whose diagonal is 40 meters.

- A. 80 m²
- B. 800 m²
- C. 1600 m²
- D. 40 m²

Answer: B

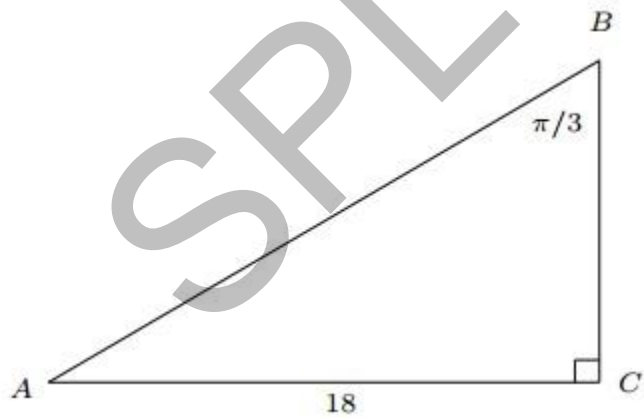
19. In the figure below BC is perpendicular to AD, CD = 8, the measure of angle D is 60° and the measure of angle A is 45° . Find the length of AB?



- A. $8\sqrt{6}$
- B. $8\sqrt{3}$
- C. $8\sqrt{2}$
- D. 8

Answer: A

20. What is the length of AB in the figure below?



- A. $12\sqrt{2}$
- B. 12
- C. $12\sqrt{3}$



D. 12 v6

Answer: C

SP Lessons