What is the distance of the office from his house?

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MODEL QUESTIONS

1. If two number 2963 and 1312 are divided by a three digit number N, giving the same remainder in each case. The sum of the digits of number N is –
a) 8 b) 11
c) 9 d) 10

Sol: The difference of numbers
= 2963 – 1312 = 1651
Now,
1651 = 13 × 127 (product of two prime numbers)
Required three digit number
= 127
Sum of three digit number
= 1 + 2 + 7 = 10

Ans: **d**

2. When 18^{200} is divided by 19, then the remainder will be –
a) 0 b) 19
c) 1 d) 17

Sol: We Know that $(x^n - a^n)$ is divisible by $(x + a)$,
When n is even–
$(18^{200}–1^{200})$ is divided by (18+1)
So, when 18^{200} is divided by 19, the remainder is 1.

Ans: **c**

3. By selling 44 pens, a shop-keeper's gain is equal to the selling price of 12 pens. Find his gain percent.
a) 33 $^1/_3$% b) 50%
c) 37 ½ % d) 34%

Sol: Profit percent

$$= \frac{12}{44-12} \quad 100$$

$$= \frac{12}{32} \quad 100 = 37\ ½\%$$

Ans: **c**

4. If a single discount is equivalent to three successive discount of 30%, 60% and 70%, then the single discount is –
a) 88.20% b) 74%
c) 91.60% d) 78%

Sol: Single Discount

$$= 100 - 100 \quad \frac{70}{100} \quad \frac{40}{100} \quad \frac{30}{100}$$

= 91.60%

Ans: **c**

5. The boys and girls in a college are in the ratio of 3 : 2. If 80% of the boys and 75% of the girls are adults. Then, what is the percentage of the students who are not adult?
a) 22% b) 22.5%
c) 23% d) 23.5%

Sol: Let total number of students
= 5*x*
The number of adult boys

$$5x \quad \frac{3}{5} \quad \frac{80}{100} = 2.4x$$

The number of adult girls

$$= 5x \quad \frac{2}{5} \quad \frac{75}{100} = 1.5x$$

Required percentage

$$= \frac{5x - (2.4 \quad 1.5x)}{5x} \quad 100 = 22\%$$

Ans: ***a***

6. The batting average of a cricket player for 30 innings is 40 runs. His highest score exceeds his lowest score by 100 runs. If these two innings are not included, the average of the remaining 28 innings is 38 runs. The lowest score of the players is–
a) 12 b) 15
c) 18 d) 20

Sol: Highest score + lowest score + 28 + 38 = 30 × 40
Highest score + lowest score
= 136
Highest score – lowest score
= 100 [∴ ATQ]

Lowest score $= \frac{36}{2} = 18$

Ans: ***c***

7. The ratio of ages of A, B and C is 5 : 8 : 9. If the sum of the ages of A and C is 56 years. Then, the age of B is –
a) 21 years b) 32 years
c) 12 years d) 23 years

Sol: The ages of A, B and C is 5*x*, 8*x* and 9*x* years respectively
Age of A + age of C = 56 years
5*x* + 9*x* = 56 years
x = 4
The age of B = 8 4 = 32 years

Ans: ***b***

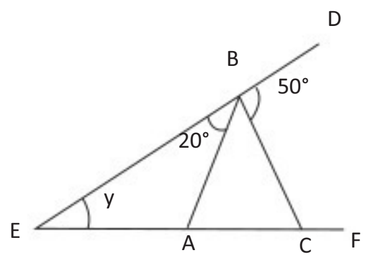
8. If 2*x* = 3y = 4z, find *x* : y : z.
a) 4 : 3 : 2 b) 2 : 3 : 4
c) 3 : 4 : 6 d) 6 : 4: 3

Sol: 2x = 3y = 4z
So,

$$x : y : z = \frac{1}{2} : \frac{1}{3} : \frac{1}{4} = 6 : 4 : 3$$

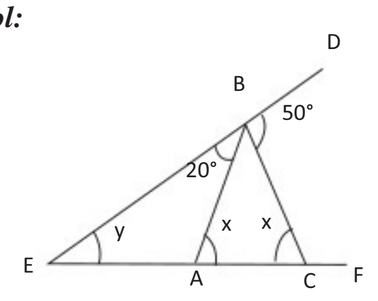
Ans: ***d***

9. In the given figure, If AB = BC, ∠DBC = 50° and ∠EBA = 20°, then ∠BEA = ?



a) 15° b) 25°
c) 20° d) 30°

Sol:



∠EBA + ∠ABC+ ∠DBC = 180°
20° + ∠ABC + 50° = 180°
∠ABC = 110°
In ΔABC
AB – AC
2*x* + ∠ABC = 180°
x = 35°
∠BEA + ∠ABE = ∠BAC
[∴ Exterior angle property]
∠BEA = 35° – 20°
Y = 15°

Ans: ***a***

10. Distance travelled and time taken by three cars are in the ratio of 2 : 3 : 4 and 4 : 3 : 5 respectively. the ratio of their speeds is –
a) 2 : 4 : 7
b) 5 : 10 : 8
c) 5 : 8 : 10
d) 7 : 3 : 4

Sol: Require ratio

$$= \frac{2}{4} : \frac{3}{3} : \frac{4}{5} = \frac{1}{2} : 1 : \frac{4}{5} = 5 : 10 : 8$$

Ans: ***b***

11. Gaurav on walking at a speed of 16 km/hr reaches his office 8 minutes late. Even after increasing his speed by 8 km/hr, he reaches his office 6 minutes late. What is the distance of the office from his house?
a) 2.0 km b) 1.6 km
c) 2.5 km d) 2.4 km

Sol: Let distance be D km

$$\therefore \frac{D}{16} - \frac{D}{24} = \frac{2}{60} = \frac{1}{30}$$

$$\frac{3D - 2D}{48} = \frac{1}{30}$$

$$D = \frac{48}{30}$$

D = 1.6 km

Ans: ***b***

12. Arun can do a piece of work in 12 days. Alok can do the same work in 18 days. The total wages earned is Rs.80. How much Arun be paid if they work together?
a) Rs. 46 b) Rs. 36
c) Rs. 48 d) Rs. 42

Sol: Total days taken by both working together

$$= \frac{12 \quad 18}{12 + 18} = \frac{36}{5}$$

Ratio of work done by both

Arun : Alok

$$= \frac{36}{5 \quad 12} : \frac{36}{18 \quad 5} = 3 : 2$$

Ratio of wages = Ratio of work

3 : 2
↓ ↓
48 32 total wages = 80

So, Arun will get Rs. 48.

Ans: ***c***

13. If $\frac{a}{b} = \frac{4}{7}$ and $\frac{c}{b} = \frac{3}{7}$, then find the value of $\frac{3a + 2c}{3a - 2c}$

a) 0 b) 1
c) 3 d) 2

Sol: $\frac{a}{b} = \frac{4}{7}$ and $\frac{c}{b} = \frac{3}{7}$

$$\frac{a}{c} = \frac{a}{b} \quad \frac{b}{c} = \frac{4}{7} \quad \frac{7}{3}$$

$$\frac{a}{c} = \frac{4}{3}$$

Multiply by $\frac{3}{2}$ on both side

$$\frac{3a}{2c} = \frac{2}{1}$$

Apply C & D on both side

$$\frac{3a + 2c}{3a - 2c} = \frac{2 + 1}{2 - 1}$$

$$\frac{3a + 2c}{3a - 2c} = 3$$

Ans: c

14. A man purchases two T.V. Set for Rs. 47908. By selling one T.V. at profit of 17% and the other at a loss of 11%, he neither gains nor loses in the whole transaction. The cost price of each T.V. (in)is
a) Rs. 18821 and Rs. 29187
b) Rs. 18821 and Rs. 29087
c) Rs. 18021 and Rs 29887
d) Rs. 34000 and Rs. 13908

Sol:

I II
17% –11%
0
11% 17%
11 : 17 = 28
↓ 1711 ↓ 1711 ↓ 1711
18821 29087 47908

∴ cost price of the T.V.
= Rs. 18821 & Rs. 29087

Ans: ***b***

15. By selling article for Rs.96, a shopkeeper bears a loss of 12%. If shopkeeper sells that article for Rs.132, then the profit percent is –
a) 21% b) 13%
c) 19% d) 16%

Sol: Loss → 12% and S.P. = 96%
Rs. 96 = (100 –12)% = 88%

$$\text{Rs.}132 = \frac{88}{96} \times 132 = 121\%$$

Required profit
= 121% – 100% = 21%

Ans: ***a***