

QUANTITATIVE APTITUDE

Time and Work





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Quantitative Aptitude

Quantitative Aptitude is an important and highly scoring topic in **Competitive Exams** especially in **Bank Exams**. Quantitative Aptitude or Data Interpretation based questions are structured assessments that evaluate the talent and skills of the Candidates. It measures the problem-solving skills of the candidates so it has become an important part of Bank Exams.

Every bank exam includes Quantitative Aptitude in their Prelim and Mains Exams. Banks like **SBI, IBPS (for Clerk & PO), IBPS RRB and RBI Grade B** includes Quantitative Aptitude in their syllabus to examine the candidates' **Thinking power**. To understand the importance of Quantitative Aptitude let us have a look at the weightage of this topic in different banking exams.

Prelims and Mains Syllabus for Bank Exams

Prelims Syllabus	Mains Syllabus
<ul style="list-style-type: none">◆ Number Series◆ Data Interpretation◆ Simplification/Approximation◆ Quadratic Equation◆ Data Sufficiency◆ Mensuration◆ Average◆ Profit and Loss◆ Ratio and Proportion◆ Time and Work◆ Time and Distance◆ Probability◆ Partnership◆ Problem on Ages◆ Simple and Compound Interest◆ Permutation and Combination	<ul style="list-style-type: none">◆ Simplification◆ Average◆ Percentage◆ Ratio and Percentage◆ Data Interpretation◆ Mensuration and Geometry◆ Quadratic Equation◆ Interest◆ Problems of Ages◆ Profit and Loss◆ Number Series◆ Speed, Distance and Time◆ Time and Work◆ Number System◆ Data Sufficiency◆ Linear Equation◆ Permutation and Combination◆ Probability◆ Mixture and Allegations



Quantitative Aptitude – Time and Work

1. A can do a work in 15 days and B in 20 days. If they work on it together for 4 days, then the fraction of the work that is left is:

- A. $\frac{1}{4}$
- B. $\frac{1}{10}$
- C. $\frac{7}{15}$
- D. $\frac{8}{15}$

Answer: D

Explanation:

$$\text{A's 1 day's work} = \frac{1}{15};$$

$$\text{B's 1 day's work} = \frac{1}{20};$$

$$\text{(A + B)'s 1 day's work} = \left(\frac{1}{15} + \frac{1}{20}\right) = \frac{7}{60}.$$

$$\text{(A + B)'s 4 day's work} = \left(\frac{7}{60} \times 4\right) = \frac{7}{15}.$$

$$\therefore \text{Remaining work} = \left(1 - \frac{7}{15}\right) = \frac{8}{15}$$

2. A can lay railway track between two given stations in 16 days and B can do the same job in 12 days. With help of C, they did the job in 4 days only. Then, C alone can do the job in:

- A. $9\frac{1}{5}$ days
- B. $9\frac{2}{5}$ days
- C. $9\frac{3}{5}$ days
- D. 10

Answer: C

Explanation:

$$\text{(A + B + C)'s 1 day's work} = \frac{1}{4}$$

$$\text{A's 1 day's work} = \frac{1}{16},$$

$$\text{B's 1 day's work} = \frac{1}{12}$$

$$\text{C's 1 day's work} = \frac{1}{4} - \left(\frac{1}{16} + \frac{1}{12}\right)$$



So, C alone can do the work in $\frac{48}{5} = 9\frac{3}{5}$ days

3. A, B and C can do a piece of work in 20, 30 and 60 days respectively. In how many days can A do the work if he is assisted by B and C on every third day?

- A. 12 days
- B. 15 days
- C. 16 days
- D. 18 days

Answer: B

Explanation:

$$\text{A's 2 day's work} = \left(\frac{1}{20} \times 2\right)$$

$$\text{(A + B + C)'s 1 day's work} = \left(\frac{1}{20} + \frac{1}{30} + \frac{1}{60}\right) = \frac{6}{60} = \frac{1}{10}$$

$$\text{Work done in 3 days} = \left(\frac{1}{10} + \frac{1}{10}\right) = \frac{1}{5}$$

Now, $\frac{1}{5}$ work is done in 3 days.

4. A is thrice as good as workman as B and therefore is able to finish a job in 60 days less than B. Working together, they can do it in:

- A. 20 days
- B. $22\frac{1}{2}$ days
- C. 25 days
- D. 30 days

Answer: B

Explanation:

Ratio of times taken by A and B = 1: 3.

The time difference is (3 - 1) 2 days while B take 3 days and A takes 1 day.

If difference of time is 2 days, B takes 3 days.

If difference of time is 60 days, B takes $\left(\frac{3}{2} \times 60\right) = 90$ days.

So, A takes 30 days to do the work.

$$\text{A's 1 day's work} = \frac{1}{30}$$

$$\text{B's 1 day's work} = \frac{1}{90}$$



$$(A + B)\text{'s 1 day's work} = \left(\frac{1}{30} + \frac{1}{90}\right) = \frac{4}{90} = \frac{2}{45}$$

A and B together can do the work in $\frac{45}{2}$ days.

5. A alone can do a piece of work in 6 days and B alone in 8 days. A and B undertook to do it for Rs. 3200. With the help of C, they completed the work in 3 days. How much is to be paid to C?

- A. Rs. 375
- B. Rs. 400
- C. Rs. 600
- D. Rs. 800

Answer: B

Explanation:

$$C\text{'s 1 day's work} = \frac{1}{3} - \left(\frac{1}{6} + \frac{1}{8}\right) = \frac{1}{3} - \frac{7}{24} = \frac{1}{24} = 4: 3: 1$$

A's wages: B's wages: C's wages =

$$C\text{'s share (for 3 days)} = \text{Rs. } \left(3 \times \frac{1}{24} \times 3200\right) = \text{Rs. } 400.$$

6. If 6 men and 8 boys can do a piece of work in 10 days while 26 men and 48 boys can do the same in 2 days, the time taken by 15 men and 20 boys in doing the same type of work will be:

- A. 4 days
- B. 5 days
- C. 6 days
- D. 7 days

Answer: A

Explanation:

Let 1 man's 1 day's work = x and 1 boy's 1 day's work = y.

$$\text{Then, } 6x + 8y = \frac{1}{10} \text{ and } 26x + 48y = \frac{1}{2} .$$

$$\text{Solving these two equations, we get: } x = \frac{1}{100} \text{ and } y = \frac{1}{200} .$$

$$(15 \text{ men} + 20 \text{ boy})\text{'s 1 day's work} = \left(\frac{15}{100} + \frac{20}{200}\right) = \frac{1}{4} .$$

∴ 15 men and 20 boys can do the work in 4 days.



7. A can do a piece of work in 4 hours; B and C together can do it in 3 hours, while A and C together can do it in 2 hours. How long will B alone take to do it?

- A. 8 hours
- B. 10 hours
- C. 12 hours
- D. 24 hours

Answer: C

Explanation:

$$\text{A's 1 hour's work} = \frac{1}{4};$$

$$\text{(B + C)'s 1 hour's work} = \frac{1}{3};$$

$$\text{(A + C)'s 1 hour's work} = \frac{1}{2};$$

$$\text{(A + B + C)'s 1 hour's work} = \left(\frac{7}{12} + \frac{1}{2}\right) = \frac{7}{12};$$

$$\text{B's 1 hour's work} = \left(\frac{7}{12} + \frac{1}{2}\right) = \frac{1}{12};$$

∴ B alone will take 12 hours to do the work.

8. A can do a certain work in the same time in which B and C together can do it. If A and B together could do it in 10 days and C alone in 50 days, then B alone could do it in:

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

Answer: C

Explanation:

$$\text{(A + B)'s 1 day's work} = \frac{1}{10}$$

$$\text{C's 1 day's work} = \frac{1}{50}$$

$$\text{(A + B + C)'s 1 day's work} = \left(\frac{1}{10} + \frac{1}{50}\right) = \frac{6}{50} = \frac{3}{25} \dots (i)$$

$$\text{A's 1 day's work} = \text{(B + C)'s 1 day's work} \dots (ii)$$

$$\text{From (i) and (ii), we get: } 2 \times \text{(A's 1 day's work)} = \frac{3}{25}$$



$$\Rightarrow \text{A's 1 day's work} = \frac{3}{50} .$$

$$\therefore \text{B's 1 day's work} \left(\frac{1}{10} - \frac{1}{50} \right) = \frac{2}{50} = \frac{3}{50}$$

So, B alone could do the work in 25 days.

9. A does 80% of a work in 20 days. He then calls in B and they together finish the remaining work in 3 days. How long B alone would take to do the whole work?

- A. 23 days
- B. 37 days
- C. $37\frac{1}{2}$
- D. 40 days

Answer: C

Explanation:

Whole work is done by A in $(20 \times \frac{5}{4}) = 25$ days.

Now, $(1 - \frac{4}{5})$ i.e., $\frac{1}{5}$ work is done by A and B in 3 days.

Whole work will be done by A and B in $(3 \times 5) = 15$ days.

$$\text{A's 1 day's work} = \frac{1}{25}, \text{ (A + B)'s 1 day's work} = \frac{1}{15}$$

$$\therefore \text{B's 1 day's work} = \left(\frac{1}{15} - \frac{1}{25} \right) = \frac{4}{150} = \frac{2}{75} .$$

So, B alone would do the work in $\frac{75}{2} = 37\frac{1}{2}$ days.

10. a machine P can print one lakh books in 8 hours, machine Q can print the same number of books in 10 hours while machine R can print them in 12 hours. All the machines are started at 9 A.M. while machine P is closed at 11 A.M. and the remaining two machines complete work. Approximately at what time will the work (to print one lakh books) be finished?

- A. 11:30 A.M.
- B. 12 noon
- C. 12:30 P.M.
- D. 1:00 P.M.

Answer: D

Explanation:

$$\text{(P + Q + R)'s 1 hour's work} = \left(\frac{1}{8} + \frac{1}{10} + \frac{1}{12} \right) = \frac{37}{120}$$

$$\text{Work done by P, Q and R in 2 hours} = \left(\frac{37}{120} \times 2 \right) = \frac{37}{60} .$$



$$\text{Remaining work} = \left(1 - \frac{37}{60}\right) = \frac{23}{60}$$

$$(Q + R)\text{'s 1 hour's work} = \left(\frac{1}{10} + \frac{1}{12}\right) = \frac{23}{11}$$

Now, $\frac{11}{60}$ work is done by Q and R in 1 hour.

So, $\frac{23}{60}$ work will be done by Q and R in $\left(\frac{60}{11} \times \frac{23}{60}\right) \frac{23}{11}$ hours = 2 hours.

So, the work will be finished approximately 2 hours after 11 A.M., i.e., around 1 P.M.

11. A can finish a work in 18 days and B can do the same work in 15 days. B worked for 10 days and left the job. In how many days, A alone can finish the remaining work?

- A. 5
- B. $5\frac{1}{2}$
- C. 6
- D. 8

Answer: C

Explanation:

$$B\text{'s 10 day's work} = \left(\frac{1}{15} \times 10\right) = \frac{2}{3}$$

$$\text{Remaining work} = \left(1 - \frac{2}{3}\right) = \frac{1}{3}$$

Now, $\frac{1}{18}$ work is done by A in 1 day.

$$\therefore \frac{1}{3} \text{ Work is done by A in } \left(18 \times \frac{1}{3}\right) = 6 \text{ days.}$$

12. 4 men and 6 women can complete a work in 8 days, while 3 men and 7 women can complete it in 10 days. In how many days will 10 women complete it?

- A. 35
- B. 40
- C. 45
- D. 50

Answer: B

Explanation:

Let 1 man's 1 day's work = x and 1 woman's 1 day's work = y.

$$\text{Then, } 4x + 6y = \frac{1}{8} \text{ and } 3x + 7y = \frac{1}{10}$$





Solving the two equations, we get: $x = \frac{11}{400}$, $y = \frac{1}{400}$

$$\therefore 1 \text{ woman's 1 day's work} = \frac{1}{400} .$$

$$10 \text{ women's 1 day's work} = \left(\frac{1}{400} \times 10\right) = \frac{1}{40}$$

Hence, 10 women will complete the work in 40 days.

13. A and B can together finish a work 30 days. They worked together for 20 days and then B left. After another 20 days, A finished the remaining work. In how many days A alone can finish the work?

- A. 40
- B. 50
- C. 54
- D. 60

Answer: D

Explanation:

$$(A + B)\text{'s 20 day's work} = \left(\frac{1}{30} \times 20\right) = \frac{2}{3} .$$

$$\text{Remaining work} = \left(1 - \frac{2}{3}\right) = \frac{1}{3} .$$

Now, $\frac{1}{3}$ work is done by A in 20 days.

Therefore, the whole work will be done by A in $(20 \times 3) = 60$ days.

14. P can complete a work in 12 days working 8 hours a day. Q can complete the same work in 8 days working 10 hours a day. If both P and Q work together, working 8 hours a day, in how many days can they complete the work?

- A. $5\frac{5}{11}$
- B. $5\frac{6}{11}$
- C. $6\frac{5}{11}$
- D. $6\frac{6}{11}$

Answer: A

Explanation:

P can complete the work in (12×8) hrs. = 96 hrs.

Q can complete the work in (8×10) hrs. = 80 hrs.

$$\therefore \text{P's 1 hour's work} = \frac{1}{96} \text{ and Q's 1 hour's work} = \frac{1}{80}$$



$$(P + Q)\text{'s 1 hour's work} = \left(\frac{1}{96} + \frac{1}{80}\right) = \frac{11}{480}$$

So, both P and Q will finish the work in $\left(\frac{480}{11}\right)$ hrs.

$$\therefore \text{Number of days of 8 hours each} = \left(\frac{1}{96} + \frac{1}{8}\right) = \frac{60}{11} = 5\frac{5}{11} \text{ days}$$

15. 10 women can complete a work in 7 days and 10 children take 14 days to complete the work. How many days will 5 women and 10 children take to complete the work?

- A. 3
- B. 5
- C. 7
- D. Cannot be determined

Answer: C

Explanation:

$$1 \text{ woman's 1 day's work} = \frac{1}{70}$$

$$1 \text{ child's 1 day's work} = \frac{1}{140}$$

$$(5 \text{ women} + 10 \text{ children})\text{'s day's work} = \left(\frac{1}{70} + \frac{1}{140}\right) = \left(\frac{1}{14} + \frac{1}{14}\right) = \frac{1}{7}$$

\therefore 5 women and 10 children will complete the work in 7 days.

16. X and Y can do a piece of work in 20 days and 12 days respectively. X started the work alone and then after 4 days Y joined him till the completion of the work. How long did the work last?

- A. A.6 days
- B. 10 days
- C. 15 days
- D. 20 days

Answer: B

Explanation:

$$\text{Work done by X in 4 days} = \left(\frac{1}{20} \times 4\right) = \frac{1}{5}$$

$$\text{Remaining work} = \left(1 - \frac{1}{5}\right) = \frac{4}{5}$$

$$(X + Y)\text{'s 1 day's work} = \left(\frac{1}{20} + \frac{1}{12}\right) = \frac{8}{60} = \frac{2}{15}$$

Now, $\frac{4}{5}$ work is done by X and Y in 1 day.



So, $\frac{4}{5}$ work will be done by X and Y in $(\frac{15}{2} \times \frac{4}{5}) = 6$ days

Hence, total time taken = $(6 + 4)$ days = 10 days.

17. A is 30% more efficient than B. How much time will they, working together, take to complete a job which A alone could have done in 23 days?

- A. 11 days
- B. 13 days
- C. $20\frac{3}{17}$ days
- D. None of these

Answer: B

Explanation:

Ratio of times taken by A and B = 100: 130 = 10: 13.

Suppose B takes x days to do the work.

Then, 10: 13:: 23 : x $\Rightarrow x = (\frac{23 \times 13}{10}) \Rightarrow x = \frac{299}{10}$ TM

A's 1 day's work = $\frac{1}{23}$;

B's 1 day's work = $\frac{10}{299}$

(A + B)'s 1 day's work = $(\frac{1}{23} + \frac{10}{299}) = \frac{23}{299} = \frac{1}{13}$

Therefore, A and B together can complete the work in 13 days.

18. Ravi and Kumar are working on an assignment. Ravi takes 6 hours to type 32 pages on a computer, while Kumar takes 5 hours to type 40 pages. How much time will they take, working together on two different computers to type an assignment of 110 pages?

- A. 7 hours 30 minutes
- B. 8 hours
- C. 8 hours 15 minutes
- D. 8 hours 25 minutes

Answer: C

Explanation:

Number of pages typed by Ravi in 1 hour = $\frac{32}{6} = \frac{16}{3}$

Number of pages typed by Kumar in 1 hour = $\frac{40}{5} = 8$



Number of pages typed by both in 1 hour = $(\frac{16}{3} + 8) = \frac{40}{3}$

Therefore Time taken by both to type 110 pages = $(110 \times \frac{3}{40})$ hours

= $8\frac{1}{4}$ hours (or) 8 hours 15 minutes.

19. A, B and C can complete a piece of work in 24, 6 and 12 days respectively. Working together, they will complete the same work in:

- A. $\frac{1}{24}$ day
- B. $\frac{7}{24}$ day
- C. $3\frac{3}{7}$ day
- D. 4 days

Answer: C

Explanation:

Formula: If A can do a piece of work in n days, then A's 1 day's work = $\frac{1}{n}$ day

(A + B + C)'s 1 day's work = $(\frac{1}{24} + \frac{1}{6} + \frac{1}{12}) = \frac{7}{24}$

Formula: If A's 1 day's work = $\frac{1}{n}$, then A can finish the work in n days.

So, all the three together will complete the job in $(\frac{24}{7})$ days = $3\frac{3}{7}$ days

20. Sakshi can do a piece of work in 20 days. Tanya is 25% more efficient than Sakshi. The number of days taken by Tanya to do the same piece of work is:

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

Answer: B

Explanation:

Ratio of times taken by Sakshi and Tanya = 125: 100 = 5: 4.

Suppose Tanya takes x days to do the work.

5: 4:: 20: x $\Rightarrow x = (\frac{4 \times 20}{5})$

$\Rightarrow x = 16$ days.



Hence, Tanya takes 16 days to complete the work.

21. A takes twice as much time as B or thrice as much time as C to finish a piece of work. Working together, they can finish the work in 2 days. B can do the work alone in:

- A. 4 days
- B. 6 days
- C. 8 days
- D. 12 days

Answer: B

Explanation:

Suppose A, B and C take x , $\frac{x}{2}$ and $\frac{x}{3}$ days respectively to finish the work.

$$\text{Then, } \left(\frac{1}{x} + \frac{2}{x} + \frac{3}{x} \right) = \frac{1}{2}$$

$$\Rightarrow \frac{6}{x} = \frac{1}{2}$$

$$\Rightarrow x = 12.$$

So, B takes $(12/2) = 6$ days to finish the work.

22. A and B can complete a work in 15 days and 10 days respectively. They started doing the work together but after 2 days B had to leave and A alone completed the remaining work. The whole work was completed in:

- A. 8 days
- B. 10 days
- C. 12 days
- D. 15 days

Answer: C

Explanation:

$$(A + B)\text{'s 1 day's work} = \left(\frac{1}{15} + \frac{2}{10} \right)$$

$$\text{Work done by A and B in 2 days} = \left(\frac{1}{6} \times 2 \right) = \frac{1}{3} .$$

$$\text{Remaining work} = \left(1 - \frac{1}{3} \right) = \frac{2}{3} .$$

$$\text{Now, } \frac{1}{15} \text{ work is done by A in 1 day. } \left(15 \times \frac{2}{3} \right)$$

$$\therefore \frac{2}{3} \text{ Work will be done by a in } \left(15 \times \frac{2}{3} \right) = 10 \text{ days.}$$

Hence, the total time taken = $(10 + 2) = 12$ days.



23. A and B can do a piece of work in 30 days, while B and C can do the same work in 24 days and C and A in 20 days. They all work together for 10 days when B and C leave. How many days more will A take to finish the work?

- A. 18 days
- B. 24 days
- C. 30 days
- D. 36 days

Answer: A

Explanation:

$$2(A + B + C)\text{'s 1 day's work} = \left(\frac{1}{30} + \frac{1}{24} + \frac{1}{20}\right) = \frac{15}{120} = \frac{1}{8}$$

$$\text{Therefore, } (A + B + C)\text{'s 1 day's work} = \frac{1}{2 \times 8} = \frac{1}{16}$$

$$\text{Work done by A, B, C in 10 days} = \frac{10}{16} = \frac{5}{8}$$

$$\text{Remaining work} = \left(1 - \frac{5}{8}\right) = \frac{3}{8}$$

$$\text{A's 1 day's work} = \left(\frac{1}{16} - \frac{1}{24}\right) = \frac{1}{48}$$

Now, $\frac{1}{48}$ work is done by A in 1 day.

So, $\frac{3}{8}$ work will be done by A in $\left(48 \times \frac{3}{8}\right) = 18$ days.

24. A works twice as fast as B. If B can complete a work in 12 days independently, the number of days in which A and B can together finish the work in:

- A. 4 days
- B. 6 days
- C. 8 days
- D. 18 days

Answer: A

Explanation:

Ratio of rates of working of A and B = 2: 1.

So, ratio of times taken = 1: 2.

$$\text{B's 1 day's work} = \frac{1}{12}$$

∴ A's 1 day's work = $\frac{1}{6}$; (2 times of B's work)



$$(A + B)\text{'s 1 day's work} = \left(\frac{1}{6} + \frac{1}{12}\right) = \frac{3}{12} = \frac{1}{4}$$

So, A and B together can finish the work in 4 days.

25. Twenty women can do a work in sixteen days. Sixteen men can complete the same work in fifteen days. What is the ratio between the capacity of a man and a woman?

- A. 3 : 4
- B. 4 : 3
- C. 5 : 3
- D. Data inadequate

Answer: B

Explanation:

(20 x 16) women can complete the work in 1 day.

$$\therefore 1 \text{ woman's 1 day's work} = \frac{1}{320}$$

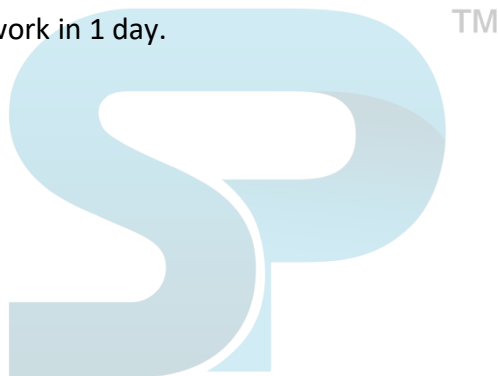
(16 x 15) men can complete the work in 1 day.

$$\therefore 1 \text{ man's 1 day's work} = \frac{1}{240}$$

$$\text{So, required ratio} = \frac{1}{240} : \frac{1}{320}$$

$$= \frac{1}{3} : \frac{1}{4}$$

$$= 4 : 3 \text{ (cross multiplied)}$$



26. A and B can do a work in 8 days, B and C can do the same work in 12 days. A, B and C together can finish it in 6 days. A and C together will do it in:

- A. 4 days
- B. 6 days
- C. 8 days
- D. 12 days

Answer: C

Explanation:

$$(A + B + C)\text{'s 1 day's work} = \frac{1}{6}$$

$$(A + B)\text{'s 1 day's work} = \frac{1}{8}$$

$$(B + C)\text{'s 1 day's work} = \frac{1}{12}$$



∴ (A + C)'s 1 day's work

$$= (2 \times \frac{1}{6}) - (\frac{1}{8} + \frac{1}{12})$$

$$= (\frac{1}{3} - \frac{5}{24})$$

$$= \frac{3}{24}$$

$$= \frac{1}{8}$$

So, A and C together will do the work in 8 days.

27. A can finish a work in 24 days, B in 9 days and C in 12 days. B and C start the work but are forced to leave after 3 days. The remaining work was done by A in:

- A. 5 days
- B. 6 days
- C. 10
- D. $10\frac{1}{2}$ days

Answer: C

Explanation:

$$(B + C)'s\ 1\ day's\ work = (\frac{1}{9} + \frac{1}{12})$$

$$Work\ done\ by\ B\ and\ C\ in\ 3\ days = (\frac{7}{36} \times 3) = \frac{7}{12}$$

$$Remaining\ work = (1 - \frac{7}{12})$$

Now, $\frac{1}{24}$ work is done by A in 1 day.

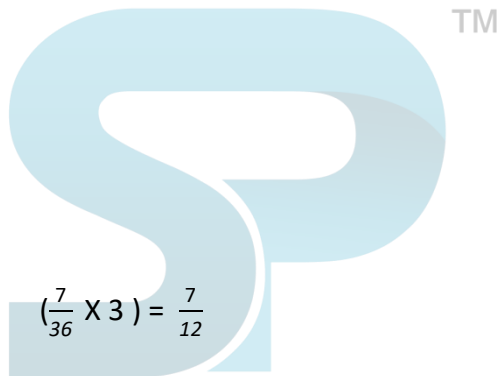
So, $\frac{5}{12}$ work is done by A in $(24 \times \frac{5}{12}) = 10$ days.

28. X can do a piece of work in 40 days. He works at it for 8 days and then Y finished it in 16 days. How long will they together take to complete the work?

- A. $13\frac{1}{3}$ days
- B. 15 days
- C. 20 days
- D. 26 days

Answer: A

Explanation:





$$\text{Work done by X in 8 days} = \left(\frac{1}{40} \times 8\right) = \frac{1}{5}$$

$$\text{Remaining work} = \left(1 - \frac{1}{5}\right)$$

Now, $\frac{4}{5}$ work is done by Y in 16 days.

Whole work will be done by Y in $(16 \times \frac{5}{4}) = 20$ days.

$$\therefore \text{X's 1 day's work} = \left(\frac{1}{40} + \frac{1}{20}\right), \text{Y's 1 day's work} = \frac{1}{20}$$

$$(X + Y)\text{'s 1 day's work} = \left(\frac{1}{40} + \frac{1}{20}\right) = \frac{3}{40}$$

Hence, X and Y will together complete the work in $\left(\frac{40}{3}\right) = 13\frac{1}{3}$ days.

29. A and B can do a job together in 7 days. A is $\frac{13}{4}$ times as efficient as B. The same job can be done by a alone in:

- A. $9\frac{1}{3}$ days
- B. 11 days
- C. $12\frac{1}{4}$ days
- D. $16\frac{1}{3}$ days

Answer: B

Explanation:

$$(\text{A's 1 day's work}) : (\text{B's 1 day's work}) = \frac{13}{4} : 1 = 13 : 4.$$

Let A's and B's 1 day's work be $7x$ and $4x$ respectively.

$$\text{Then, } 7x + 4x = \frac{1}{7} \Rightarrow 11x = \frac{1}{7} \Rightarrow x = \frac{1}{77}$$

$$\therefore \text{A's 1 day's work} = \left(\frac{1}{77} \times 7\right) = \frac{1}{11}$$

30. A and B together can do a piece of work in 30 days. A having worked for 16 days, B finishes the remaining work alone in 44 days. In how many days shall B finish the whole work alone?

- A. 30 days
- B. 40 days
- C. 60 days
- D. 70 days

Answer: C

Explanation:





Let A's 1 day's work = x and B's 1 day's work = y .

Then, $x + y = \frac{1}{30}$ and $16x + 44y = 1$.

Solving these two equations, we get: $x = \frac{1}{60}$ and $y = \frac{1}{60}$

∴ B's 1 day's work = $\frac{1}{60}$

Hence, B alone shall finish the whole work in 60 days.

31. A and B together can complete a task in 7 days. B alone can do it in 20 days. What part of the work was carried out by A?

I. A completed the job alone after A and B worked together for 5 days.

II. Part of the work done by A could have been done by B and C together in 6 days.

- 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

Answer: A

Explanation:

B's 1 day's work = $\frac{1}{20}$

(A + B)'s 1 day's work = $\frac{1}{7}$

I. (A + B)'s 5 day's work = $\frac{5}{7}$

Remaining work = $(1 - \frac{5}{7}) = \frac{2}{7}$

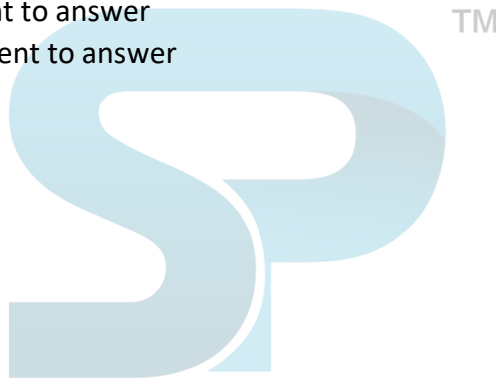
∴ $\frac{2}{7}$ Work was carried by A.

II. is irrelevant.

32. How long will Machine Y, working alone, take to produce x candles?

- I. Machine X produces x candles in 5 minutes.
- II. Machine X and Machine Y working at the same time produce x candles in 2 minutes.

- 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 necessary to answer





Answer: E

Explanation:

I. gives; Machine X produces $\frac{x}{5}$ candles in 1 min.

II. Gives, Machine X and Y produce $\frac{x}{2}$ candles in 1 min.

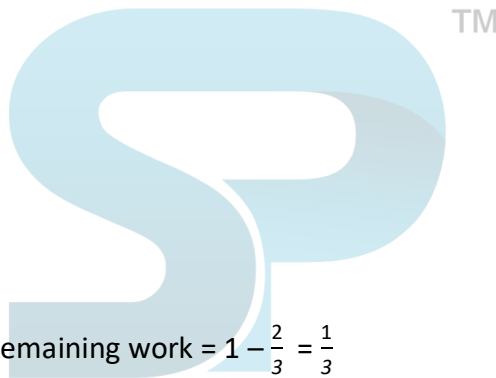
From I and II, Y produces $(\frac{x}{2} - \frac{x}{5}) = \frac{3x}{10}$ candles in 1 min.

$\frac{3x}{10}$ Candles are produced by Y in 1 min.

X candles will be produced by Y in $(\frac{10}{3} \times x)$ min = $\frac{10}{3}$ min.

33. in the beginning, Ram works at a rate such that he can finish a piece of work in 24 hrs, but he only works at this rate for 16 hrs. After that, he works at a rate such that he can do the whole work in 18 hrs. If Ram is to finish this work at a stretch, how many hours will he take to finish this work?

- A. 12 hrs
- B. 18 hrs
- C. 11½ hrs
- D. 22 hrs



Answer: D

Explanation:

Ram's 16 hr work = $16/24 = 2/3$. Remaining work = $1 - \frac{2}{3} = \frac{1}{3}$

Using work and time formula: This will be completed in $\frac{1}{3} \times 18$ i.e. 6 hrs.

So, total time taken to complete work = $16 + 6 = 22$ hrs.

34. A can do a piece of work in 10 days, and B can do the same work in 20 days. With the help of C, they finished the work in 4 days. C can do the work in how many days, working alone?

- A. 5 day
- B. 10 days
- C. 15 days
- D. 20 days

Answer: A

Explanation:

Their combined 4 day work = $4(\frac{1}{10} + \frac{1}{15}) = \frac{12}{20} = \frac{3}{5}$.



$$\text{Remaining work} = 1 - \frac{3}{5} = \frac{2}{5} .$$

This means C did $\frac{2}{5}$ work in 4 days, hence he can finish the complete work in $\frac{2}{5} \times 4 = 10$ days.

35. A can do a piece of work in 12 days. B can do this work in 16 days. A started the work alone. After how many days should B join him, so that the work is finished in 9 days?

- A. 2 days
- B. 3 days
- C. 4 days
- D. 5 days

Answer: D

Explanation:

$$\text{A's work in 9 days} = \frac{9}{12} = \frac{3}{4}. \text{ Remaining work} = \frac{1}{4}.$$

This work was done by B in $\frac{1}{4} \times 16 = 4$ days.

\therefore B would have joined A after $9 - 4 = 5$ days.

36. A and B can do a piece of work in 4 days, while C and D can do the same work in 12 days. In how many days will A, B, C and D do it together?

- A. 12 days
- B. 4 days
- C. 3 days
- D. 2 days

Answer: C

Explanation:

$$\text{A, B, C and D will together take } \frac{1}{4} + \frac{1}{12} = \frac{4}{12} = \frac{1}{3}$$

\Rightarrow 3 days to complete the work.

37. A and B can do a piece of work in 40 days, B and C can do it in 120 days. If B alone can do it in 180 days, in how many days will A and C do it together?

- A. 45 days
- B. 22.5 days
- C. 25 days
- D. 18 days

Answer: A



Explanation:

A + B take 40 days. B alone takes 180 days.

$$\therefore \text{A will take } \frac{1}{40} - \frac{1}{180} = \frac{7}{360}$$

$$\Rightarrow \frac{360}{7} \text{ Days.}$$

B + C take 120 days.

$$\therefore \text{C alone will take } \frac{1}{120} - \frac{1}{180} = \frac{1}{360}$$

I.e. 360 days.

$$\therefore \text{A \& C together will take } \frac{7}{360} + \frac{1}{360}$$

$$= \frac{8}{360} \Rightarrow \frac{360}{8} = 45 \text{ days to complete the work.}$$

Must Read Time and Work Problems Articles

Time and Work Concepts

Time and Work Formula and Solved Problems

Time and Work Problems (Easy)

Time and Work Problems (Difficult)

38. A, B, C, and D can do a piece of work in 20 days. If A and B can do it together in 50 days, and C alone in 60 days, find the time in which D alone can do it.

- A. 120 days
- B. 200 days
- C. 150 days
- D. 75 days

Answer: D

Explanation:

$$\text{Alone will take } \frac{1}{20} - \frac{1}{50} - \frac{1}{60} = \frac{3}{400} = \frac{1}{75}$$

\Rightarrow 75 days to complete the work.

39. A, B, and C can do a piece of work in 8 days. B and C together do it in 24 days. B alone can do it in 40 days. In what time will it be done by C working alone?

- A. 25 days



- B. 24 days
- C. 60 days
- D. 20 days

Answer: C

Explanation:

B & C do this work in 24 days.

B alone does this work in 40 days.

$$\text{C alone will take } \frac{1}{24} - \frac{1}{40} = \frac{2}{120} = \frac{1}{60}$$

⇒60 days to finish the work.

40. A and B undertake to do a piece of work for Rs. 450. A can do it in 20 days and B can do it in 40 days. With the help of C, they finish it in 8 days. How much should C be paid for his contribution?

- A. Rs. 180
- B. Rs. 40
- C. Rs. 120
- D. Rs. 60

Answer: A

Explanation:

A & B would have done $\frac{8}{20}$ & $\frac{8}{40}$ of the work respectively in 8 days.

Together they have done $\frac{2}{5}$ th of the work.

This implies that C has done $\frac{2}{5}$ th of the work. Thus, C should be paid $\frac{2}{5}$ th of the amount i.e. $450 \times \frac{2}{5} = \text{Rs. } 180$.

41. Daku and Tamatar can do a piece of work in 70 and 60 days respectively. They began the work together, but Daku leaves after some days and Tamatar finished the remaining work in 47 days. After how many days did Daku leave?

- A. 14 days
- B. 16 days
- C. 18 days
- D. 7 days

Answer: D

Explanation:





Tamatar would have done work in $\frac{47}{30}$ days. The remaining work i.e. $\frac{13}{60}$ must have been done by Daku and Tamatar together. They can do the whole work in $\frac{60 \times 70}{(60+70)} = \frac{60 \times 70}{130} = \frac{420}{13}$ days

So, they would have done $\frac{13}{60}$ work in $\frac{420}{13} \times \frac{13}{60} = 7$ days. Therefore, Daku left the work after 7 days.

42. Bakery P can sell 500 bread in 4 hours, bakery Q can sell the same number of bread in 5 hrs while bakery R can sell them in 6 hrs. All the bakeries are opened at 8 AM while bakery P is closed at 9 AM and the remaining 2 bakeries complete the target of selling 500 breads. Approximately by what time will the work be finished?

- A. 10:00 AM
- B. 8:00 PM
- C. 9:00 PM
- D. 6:00 PM

Answer: A

Explanation:

Bakery P can sell 500 bread in 4 hours.

$$\text{One hour work of bakery P} = \frac{1}{4}$$

Bakery Q can sell the same number of bread in 5 hrs.

$$\text{One hour work of bakery Q} = \frac{1}{5}$$

Bakery R can sell the same number of braes in 6 hrs.

$$\text{One hour work of bakery R} = \frac{1}{6}$$

$$(P + Q + R)\text{'s one hour} = \left(\frac{1}{4}\right) + \left(\frac{1}{5}\right) + \left(\frac{1}{6}\right)$$

$$= \frac{(15 + 12 + 10)}{60} = \frac{37}{60}$$

$$\text{Remaining work} = 1 - \left(\frac{37}{60}\right) = \frac{23}{60}$$

$$(Q + R)\text{'s one hour work} = \left(\frac{1}{5}\right) + \left(\frac{1}{6}\right) = \frac{11}{30}$$

$$\text{So, } \left(\frac{23}{60}\right) \text{ of remaining work will be done by Q and R together in } = \left(\frac{23}{60}\right) / \left(\frac{11}{30}\right)$$

$$= \left(\frac{23}{60}\right) * \left(\frac{30}{11}\right)$$

$$= \frac{23}{22} \text{ hr}$$



= 1 hr

Therefore, remaining work will be finished in 1 hr (from 9 AM) i.e. 10 AM.

43. There are two pipes A and B which can fill a tank in 10 and 12 hours. They were opened together to fill a tank but there a leak in the pipe B due to which pipe B fill the tank with 'X' % of its usual efficiency and the tank got filled 6 hours then find value of X?

- A. 20
- B. 40
- C. 50
- D. 80

Answer: D

Explanation:

Given:

A can fill a tank = 10 hrs

B can fill a tank = 12 hrs

Total units of work = LCM of (10, 12) = 60 units

Pipe A's one hour work = $\frac{60}{10} = 6$ units

Pipe B's one hour work = $\frac{60}{12} = 5$ units

Given

That both the pipes fill the tank in 6 hrs.

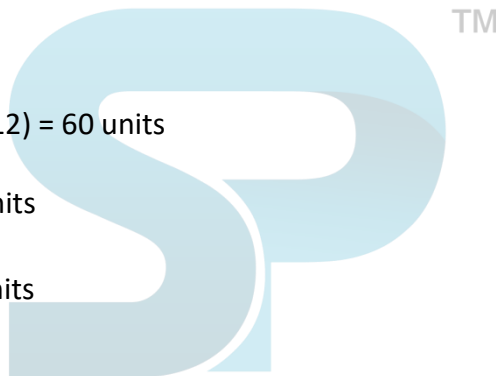
Units of work done by both pipes in one hour = $\frac{60}{6} = 10$ units

Units of work done by pipe B in our = $10 - 6 = 4$ units

Required efficiency of pipe B = $(\frac{4}{5}) * 100 = 80\%$.

44. Ajay and Vijay undertake to do a piece of work for Rs. 960. Ajay alone can do it in 75 days while Vijay alone can do it in 40 days. With the help of Pradeep, they finish the work in 25 days. How much wage should Pradeep get for his work?

- A. Rs. 280
- B. Rs. 240
- C. Rs.260
- D. None of these





Answer: D

Explanation:

Given:

Ajay alone can do a work = 75 days

Vijay alone can do a work = 40 days

Pradeep, Ajay and Vijay can finish a work = 25 days

Total work = LCM of (75, 40, 25) = 600 units

One day work of Ajay = $\frac{600}{75} = 8$ units

One day work of Vijay = $\frac{600}{40} = 15$ units

One day work of Pradeep, Ajay and Vijay = $\frac{600}{25} = 24$ units

So, efficiency of Pradeep = $24 - 8 - 15 = 1$

Therefore, wages of Pradeep = $(\frac{1}{24}) * 960 = \text{Rs. } 40$

45. A can complete a work in 10 days, B in 12 days & C in 15 days. All of them began working together. But A left after 2 days of work and B 3 days before completion of the work. How long did the work last?

- A. 7
- B. 10
- C. 8
- D. 6

Answer: A

Explanation:

Let the total work be 60. (LCM of 10, 12 & 15)

Therefore efficiency of A working alone = $\frac{60}{10} = 6$ work per day

Similarly efficiency of B working alone = $\frac{60}{12} = 5$ work per day

& efficiency of C working alone = $\frac{60}{15} = 4$ work per day

For the first 2 days all three worked.

Therefore work completed by them in 2 days = $2 * (6+5+4) = 30$ work



For last 3 days C worked alone = 12 work

Remaining work = $60 - (30+12) = 18$ work

This work was done by B+C = $\frac{18}{(5+4)} = \frac{18}{9} = 2$ days

Hence total time taken = $2 + 2 + 3 = 7$ days

46. Either 6 men or 17 women can paint a wall in 33 days. The number of days required to paint three such walls by 12 men and 32 women working at same rate?

- A. 21.5
- B. 25.5
- C. 27
- D. 25

Answer: B

Explanation:

6 men = 17 women

1 m = $\frac{17}{6}$ women

Total work = $17*33$

One day efficiency of 12 men and 32 women = $12 m + 32 w$

= $\frac{(12*17)}{6 w + 32 w} = 34 w + 32 w = 66 w$

Days required for 12 men and 32 women = $\frac{(17*33)}{66} = 8.5$ days

The number of days required to paint three such walls = $8.5*3 = 25.5$ days

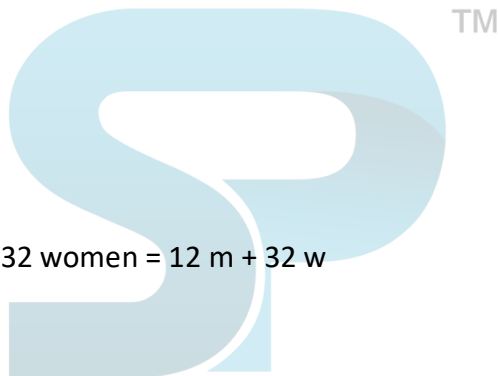
47. A can do a work in 21 days and B can do the same work in 14 days, working together in how many days they would complete the work?

- A. $(\frac{42}{5})$ days
- B. $(\frac{7}{15})$ days
- C. $(\frac{9}{15})$ days
- D. $(\frac{4}{15})$ days

Answer: A

Explanation:

Let the total work = 42 units (L.C.M of 21, 14)





----> Efficiency of A = $(\frac{42}{21}) = 2$ units/day

----> Efficiency of B = $(\frac{42}{14}) = 3$ units/day

----> Total efficiency of (2+3) = 5 units

----> No. of days taken by them to complete the work = $(\frac{42}{5})$ days

48. 18 men can earn Rs. 360 in 5 days. How much money will 15 men earn in 9 days?

- A. 540
- B. 240
- C. 340
- D. 640

Answer: A

Explanation:

Use this formula

$$\text{----> } \left(\left(\frac{W_1}{W_1 W_2} \right) \right) = \left(\left(\frac{W_2}{W_1 W_2} \right) \right)$$

$$\text{----> } \left(\frac{360}{(18 * 5)} \right) = \left(\frac{W_2}{(15 * 9)} \right)$$

$$\text{----> } W_2 = 540$$

Hence 15 men earn Rs.540 in 9 days



49. If 4 men working 4 hours per day for 4 days complete 4 units of work, then how many units of work will be completed by 2 men working for 2 hours per day in 2 days?

- A. 1
- B. 2
- C. $(\frac{1}{2})$
- D. 3

Answer: A

Explanation:

If 4 men working 4 hours per day for 4 days complete 4 units of work, then how many units of work will be completed by 2 men working for 2 hours per day in 2 days:

Reference:

$$\text{----> } \frac{(M_1 D_1 H_1)}{M_1} = \frac{(M_2 D_2 H_2)}{M_2}$$



----> $M \hat{+}$ number of men

----> $D \hat{+}$ number of days

----> $H \hat{+}$ number of hours

----> $W \hat{+}$ amount of work

$$\text{---->} \left(\frac{4 \times 4 \times 4}{4} \right) = \frac{(2 \times 2 \times 2)}{2}$$

----> $W = (1/2)$ unit

Hence the answer is: $(1/2)$ unit

50. A , B and C can complete the work in 15 days and A and B can complete the work in 20 days, than in how many days C alone can complete the whole work?

- A. 40 days
- B. 50 days
- C. 60 days
- D. 70 days

Answer: C

Explanation:

Let the total work = 60 units (LCM of 15, 20)

----> Efficiency of (A + B + C) = $(60/15)$

----> = 4 (units/day)

----> Efficiency of (A + B) = $(60/20)$

----> = 3 (units/day)

----> Efficiency of C = Total Efficiency of (A + B + C) - Efficiency of (A + B)

----> = $(4 \hat{-} 3)$

----> = 1 (unit/day)

----> No. of days taken by C to complete the work = $(60/1) = 60$ days

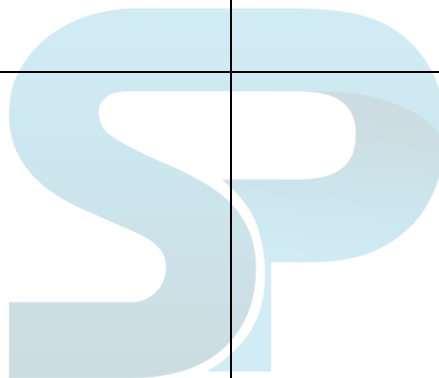




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