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Sahi Prep Hai Toh Life Set Hai

TIME & WORK

Part-3

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Agenda

* left out part
  Q14 (iv) → 10 Min

* 14 Important Question → (70 - 75) Min

Chat A → ON B → OFF

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Eg14(iv). 1 man, 3 women and 4 boys can do a work in 96 hours; 2 men and 3 women can do in 120 hours, 2 men and 8 boys in 80 hours. In how many hours can it be done by 5 men and 12 boys?

(a) $41\frac{5}{11}$ hrs (b) $43\frac{7}{11}$ hrs

(c) $43\frac{5}{11}$ hrs (d) $42\frac{7}{11}$ hrs

1M, 3w, 4B → 96

2M & 3w → 120

2M & 8B → 80

5M + 12B → ??

I^st

Work → 480 units

1M + 3w + 4B = 5

2M + 3w = 4

2M + 8B = 6

M + 4B = 3

3 + 3w = 5

3w = 2

2M = 2

M = 1

B = 1/2

5 + 6

$\frac{480}{11} = 43\frac{7}{11}$ hrs

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Ans. (b)

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PRACTICE QUESTIONS

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A → 42 hours (6)

B → 56 hours (3)

Work → 168

7 × 8 → 56 units/day

$\frac{168}{56} = 3$ days

Q1. While working 7 hours per day, A alone can complete a piece of work in 6 days and B alone in 8 days. In what time would they complete the work together, working 8 hours per day?

(a) 3 days
(b) 4 days
(c) 2.5 days
(d) 3.6 days

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Ans. (a)

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Q2. A can do $2/5^{th}$ of a work in 10 days, B can do $3/4^{th}$ of the same work in 12 days and C can do $2/3^{rd}$ of the same work in 6 days. Together they can do $769/1800^{th}$ of the work in:

(a) 3 days (b) 5 days

(c) 2 days (d) 1 days

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Ans. (c)

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A → 10 days (4 units)

B → 20 days (2 units)

C → 40 days (1 unit)

A → 4

B → 2

C → 1

⋮

Work → 40 units

3 days → 7 units

15 days → 35 units

16 days → 39 units

$16\frac{1}{2}$ days

Q3. A can complete a work in 10 days; B can complete the same work in 20 days and C in 40 days. A starts working on the first day, B works for second day and C works for third day. Again A works for fourth day and B for fifth day and so on. If they continued working in the same way, in how many days will the work be completed?

(a) 15 days (b) 16.5 days

(c) 15.5 days (d) 17 days

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Ans. (b)

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Q4. Two workers A and B working together can complete a job in 5 days, If A work twice as efficiently as he actually did and B work 1/3 as efficiently as he actually did, then the work would have been completed in 3 days. A alone can complete the work in how many days?

(a) 6¼ (b) 7½

(c) 10 (d) 12½

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Ans. (a)

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P + R → 10 days

P → 2.5 R → 8.5

→ half

P → ??

2.5P + 8.5R = 5P + 5R

3.5R = 2.5P

$\frac{P}{R} = \frac{3.5}{2.5} = \frac{7}{5}$

Q5. **P & R complete a work in 10 days doing together. If P works for 2.5 days and R for 8.5 days then half of the work will be complete. How much time does P required to complete the work alone?**

(a) $16\frac{1}{7}$

(b) $17\frac{1}{7}$

(c) $18\frac{1}{7}$

(d) $19\frac{1}{7}$

Total work → 120

$\frac{120}{7}$ → $17\frac{1}{7}$ days

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Ans. (b)

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Q6. A can do a work in 5 days less than the time taken by B alone to do it. If both of them together take $11\frac{1}{9}$ days, then the time taken by B alone to do the same work (in days) is

(a) 15 (b) 20

(c) 25 (d) 30

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Ans. (c)

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Q7. A and B can do a work in 10 days and 15 days respectively. A and B work together for 5 days and remaining work is done by C in two days. If they are paid Rs. 6000 for this work then find the daily income of each.

(a) 300, 250, 300

(b) 600, 400, 500

(c) 200, 300, 400

(d) None of these

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Ans. (b)

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Q8. A and B get salary Rs. 350 for completion of a work. A gets Rs. 150 more than B when they are working together. When A and B complete the work separately, then B takes 9 days more than A. Then find out time taken by both working together ?

(a) 30/13

(b) 30/11

(c) 30/7

(d) can’t be determined

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Ans. (c)

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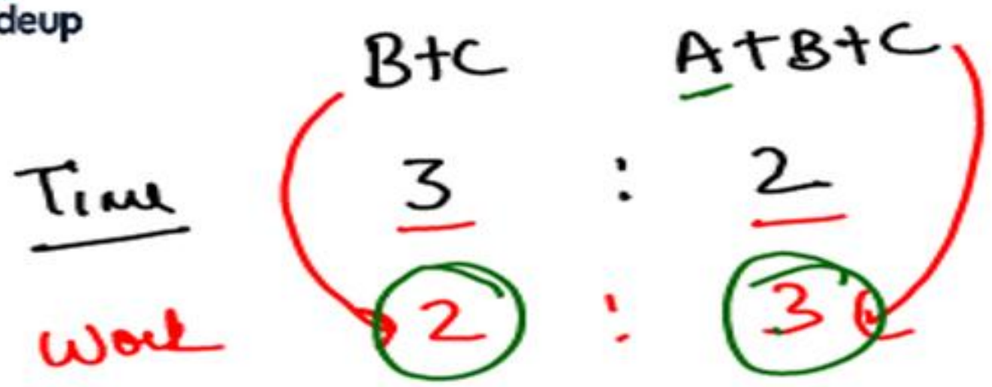

A → ~~75~~ 5

B → ~~60~~ 4

C → ~~90~~ 6

Q9. B and C can complete a work in 50% more time than A, B and C. If they work together on a job till the whole work completes then B earns 60 out of total earnings of Rs. 225. Then find in how many days they will together complete the whole work while A and B takes 8 days more to complete the work than A, B and C?

(a) 4 (b) 8

(c) 12 (d) 16

2 → 8 days

3 → 12 days

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Ans. (c)

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Q10. 40 men can complete a work in 40 days. They started the work together. But at the end of every 10th day, 5 men left the job. The work would have been completed in how many days?

(a) $56\frac{2}{3}$ days (b) $53\frac{1}{3}$ days

(c) 52 days (d) 50 days

40 men → 40 days

Total work → 1600 units

40 × 10 = 400 units

35 × 10 = 350 units

30 × 10 = 300 units

25 × 10 = 250 units

20 × 10 = 200 units

1500 units

50 days

$\frac{100}{15}\ \frac{20}{3}$ $= 6\frac{2}{3}$ day

$56\frac{2}{3}$ days

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Ans. (a)

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Q11. A can complete a work in 5 more days than B while A does the same work in 9 more days than C. If A and B can complete the whole work in same time in which C alone does the whole work. In how many days A alone can complete the same work?

(a) 6
(b) 10
(c) 15
(d) 18

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Ans. (c)

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4M 5C

Time 2 : 1

Work 1 : 2

$\frac{4M}{5C} = \frac{1}{2}$

M = 5 units/day

C = 8 units/day

W → 2.5 units/day

Q12. The time taken by 4 men to complete a job is double the time taken by 5 children to complete the same job. Each man is twice as fast as a woman. How long will 12 men, 10 children and 8 women take to complete a job, given a child would finish the job in 20 days ?

(a) 2 days (b) $2\frac{1}{8}$ days

(c) 4 days (d) 1 day ✓

$(12M + 10C + 8W)D_2 = 20 \cdot 8$

$(60 + 80 + 20) \cdot D = 160$

$D = 1$

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Ans. (d)

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Q13. A contractor undertook to finish a work in 150 days and he employs 20 men, 30 women and 75 children. After 60 days only ¼ work is complete. Now he has removed all the women and 50 children and employed some more men so that the work will finish 5 days earlier. Find the extra men employed by him. If the efficiency of 3 men is equals to efficiency of 5 women and efficiency of 2 women is equals to efficiency of 3 children.

(a) 84 (b) 114

(c) 134 (d) 124

20M + 30W + 75C | Actual | W X, 50C, xM

150 days | 60 days, 1/4th | 45 days

3M = 5W

2W = 3C

M : W = 5 : 3

W : C = 3 : 2

$\frac{(20M+30W+75C)\cdot 60}{1} = \frac{[(20+x)M+25C]\cdot 85}{3}$

$4(100+90+150)\cdot 60 = (100+15x+150)\cdot 85$

$4 \cdot 180 = 150+5x$

$5x = 570$

$x = 114$

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Ans. (b)

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Q14. If 15 men or 24 women or 36 boys can do a work in 12 days working 8 hr a day, how many men must be associated with 12 women and 6 boys to do another work, 2¼ times as great in 30 days working 6 hr per day ?

(a) 10 (b) 15

(c) 8 (d) 12

$15M = 24W = 36B \rightarrow$ 12 days, 8 hr

$$\frac{15M \cdot 12 \cdot 8}{1} = \frac{(xM + 12W + 6B) \cdot 30 \cdot 6}{2\frac{1}{4}}$$

$$\frac{15 \cdot 12 \cdot 8}{1} = \frac{(x + 7.5 + 12.5)\ 30 \cdot 6 \cdot 4}{9}$$

$$18 \cdot 12 \cdot 8 \cdot 9 = (x+10) \cdot 30 \cdot 6 \cdot 4$$

$$18 = x + 10$$

$$x = 8$$

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Ans. (c)

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Q15. 3 typists P, Q and R are working simultaneously can type 216 pages in 4 hours. In one hour R can type as many pages more than Q as Q can type more than P. R can type as many pages in 5 hours as P in 7 hours. How many pages does each of them type per hour?

(a) 15, 18, 21

(b) 16, 18, 20

(c) 14, 18, 22

(d) Can not be determined

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Ans. (a)

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A → 15 hours → 4X

B → 20 hours → 3X

A+B → 12 hours → 5X

280 Bricks

Q16. **2 men can build a wall in 15 and 20 hours respectively but if they work together they use 280 less bricks per hour and build a wall in 12 hours. Find the no. of bricks in the wall**

(a) 2800 **(b) 5600**

(c) 8400 **(d) 11200**

Sol^{n} let no. of bricks → 60X

$(4X+3X) - 280 = 5X$

$2X = 280$

$6X \rightarrow 8400$

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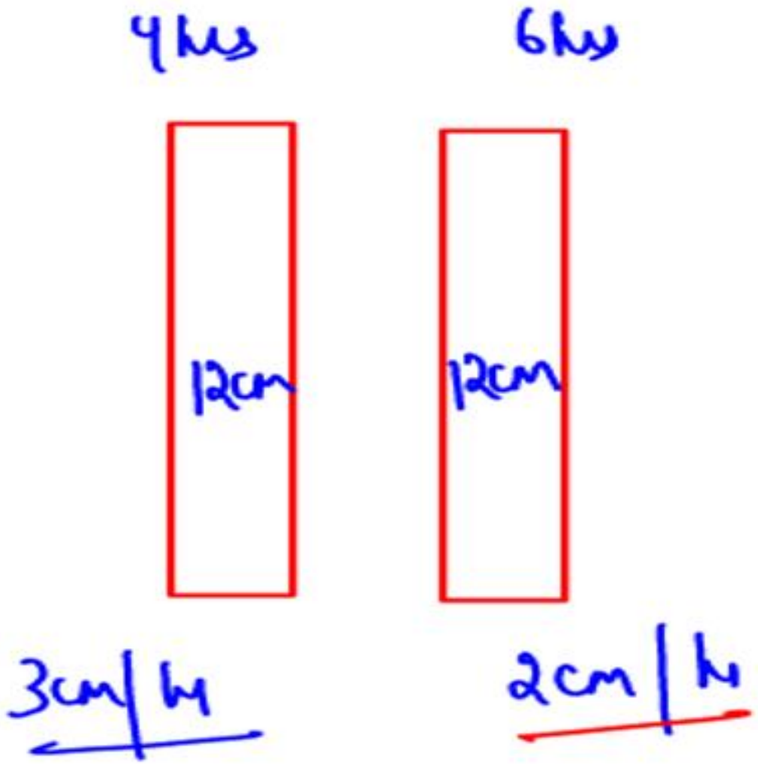
Ans. (c)



Q17. 2 candles of same height can burn completely in 4 hours and 6 hours respectively. If both start burning at same time at their respective constant speed, then find after how much time ratio of their height become 2 : 3.

(a) 108 Minute (b) 144 Minute

(c) 180 Minute (d) 216 Minute

$$\frac{12-3X}{12-2X} = \frac{2}{3}$$

$$36-9X = 24-4X$$

$$X = \frac{12}{5} \text{ hours}$$

$2\frac{2}{5}$ hours

2hrs 24min

144min

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Ans. (b)

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Q18. A monkey ascends a greased pole 60 metres high. He ascends 5 metres in the first minute and then slips down 4 metres in the alternate minute. If this pattern continue until he climbs the pole, in how many minutes would he reach at the top of the pole.

(a) 120 min. (b) 113 min.

(c) 111 min. (d) 114 min.

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Ans. (c)

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Q19. 3 men A, B and C complete a work in such a way that A works for all the day, B works for 1st & 2nd day and C works for 3rd, 4th and 5th day and the work is completed in 5 days. If B and C can do as much work in 2 days as A alone does in 3 days. In how many days A, B and C alone do the work if B and C can complete the whole work without the help of A in 6 days?

(a) 9, 9, 18
(b) 9, 18, 9
(c) 18, 9, 9
(d) 9, 12, 9

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Ans. (b)

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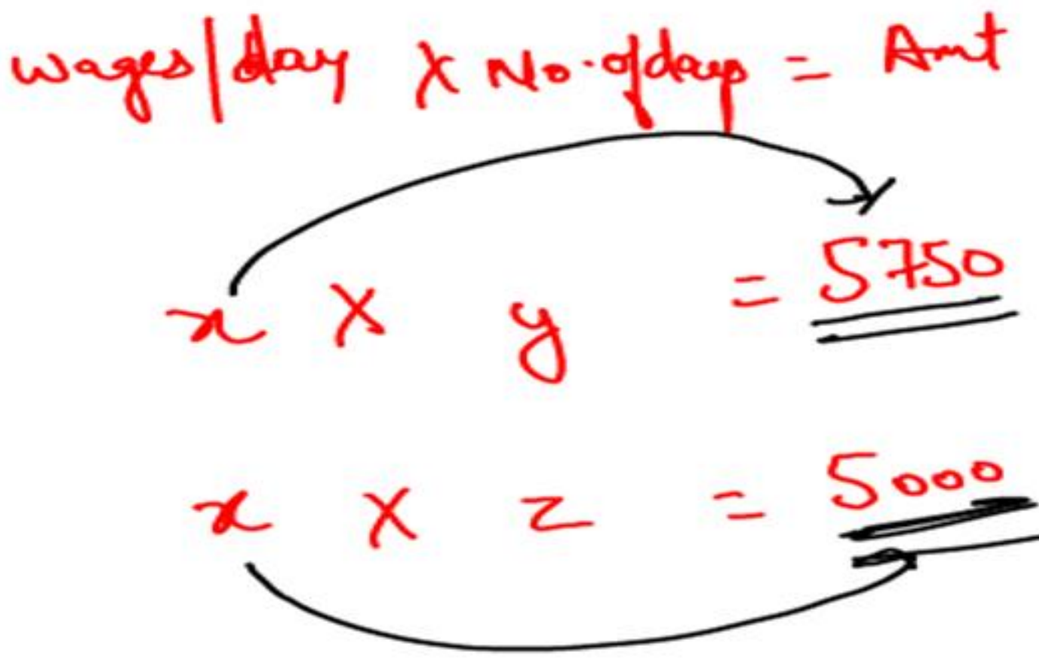

Q20. A daily-wage labourer was engaged for a certain number of days for Rs. 5750; but being absent on some of those days he was paid only Rs 5000. What was his maximum possible daily wages?

(a) Rs. 125
(b) Rs. 250
(c) Rs. 375
(d) Rs. 500

$x \rightarrow HCF(5750, 5000)$

$\Rightarrow 250$

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Ans. (b)

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A + B → 30 (2 units)

B + C → 20 (3 units)

5A + 15B + 18C = 60 units

C → ??

I^st

Work = 60 units

$$\begin{cases} A+B=2 & A=2-B \\ B+C=3 & C=3-B \\ 5A+15B+18C=60 \end{cases}$$

Q21. A and B together can do a piece of work in 30 days, B and C together can do it in 20 days. A starts the work and works on it for 5 days, then B takes it up and works for 15 days. Finally C finishes the remaining work in 18 days. In how many days can C do the work when doing it separately?

(a) 40 days (b) 24 days

(c) 120 days (d) 60 days

$5(2-B)+15B+18(3-B)=60$

$64-8B=60$

$B=1/2 \quad C=5/2$

$\frac{60 \cdot 2}{5} \rightarrow 24$ days

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Ans. (b)

$$\begin{cases} A + B = 2 \\ B + C = 3 \\ 5A + 15B + 18C = 60 \end{cases}$$

C → ??

$5A + 5B + 10B + 10C + 8C = 60$

$5(2) + 10(3) + 8C = 60$

$8C = 20$

C → 2 days

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Q22. A can complete a piece of work in 4 days B takes double the time taken by A, C takes double that of B and D takes double that of C to complete the same work. They are paired in groups of two each. One pair takes two-thirds needed by the second pair to complete the work. Which is the first pair?

(a) A & B
(b) A & C
(c) B & C
(d) A & D

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Ans. (d)

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Q23. 3 men, A, B and C can make 12 thousand pens in 2 hrs, 4 hrs and 3 hrs. respectively. If they work half hour every time, but they do not work together and A starts the work first then find in how much time they will make 18500 pen.

(a) 4 hrs.
(b) 4 hrs. 15 min.
(c) 4 hrs. 30 min.
(d) 4 hrs. 45 min.

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Ans. (b)

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A + B → 15 days

A + C → (x + 2) days B + C → x days

A + B + C → 8 days

A = ??

Logical Approach

A is less efficient

Q24. A and B together can finish a work in 15 days. A and C take 2 days more to complete the same work than that of B and C. A, B and C together complete the work in 8 days. In how many days will A finish it separately?

(a) 40 days
(b) 24 days
(c) 17 days
(d) 20 days

Ans. (a)

Detailed

A+B → 15 days

A+B+C → 8 days

A+C → x+2 B+C → x day

Work = 120

A+B = 8 units

A+B+C = 15 units

C = 7 units

A → A B → 8-A C → 7

$$\frac{120}{A+7} - \frac{120}{15-A} = 2$$

$$120\left[\frac{15-A-A-7}{15A-A^2+105-7A}\right] = 2$$

$$A^2 - 128A + 375 = 0$$

$$A = 3, 125$$

$$-A^2 + 8A + 105 = -120A + 480$$

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Q25. 3 men A, B and C working together can do a job 6 hours less time than A alone did, 1 hour less time than B alone and half the time needed by C. In how many hours will (A + B) together finish the work.

(a) 20/3 (b) 3/4

(c) 3/2 (d) 4/3

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Ans. (d)

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Q26. A group of workers was put on a job from the second day onwards, one worker was withdrawn each day. The job was finished when the last worker was withdrawn. Had no worker been withdrawn at any stage, the group would have finished the job in two-third of the time. How many workers were there in the group?

(a) 2
(b) 3
(c) 5
(d) 11

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Ans. (b)

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Q27. A, B and C can complete a job in 10 days, if C had worked only for first 3 days. The work done in first 3 days is 37/100 of total work allotted also, the work done by A in 5 days is equal to work done by B in 4 days. How many days would be required by the fastest worker to complete entire work?

(a) 20 days (b) 25 days

(c) 30 days (d) 40 days

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Ans. (a)

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Q28. 3 cooks have to make 80 burgers. They are known to make 20 pcs every minute by working together. The 1st cook began working alone and made 20 pcs having worked for sometime more than 3 min and rest work completed by 2nd & 3rd cook and it takes a total of 8 min to complete the whole work. In how much time the 1st will make 160 burgers?

(a) 16 Minute
(b) 24 Minute
(c) 32 Minute
(d) 40 Minute

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Ans. (c)

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Q29. It takes 6 days for 3 women and 2 men together to complete a work. 3 men would do the same work five days sooner than 9 women. How many times does the output of a man exceed that of women?

(a) 3 times (b) 4 times

(c) 5 times (d) 6 times

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Ans. (c)

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Q30. 150 workers were engaged to finish a piece of work in a certain number of days. Four workers dropped on the second day, four more workers dropped on third day and so on. It takes 8 more days to finish the work now. Find the number of days in which the work was completed.

(a) 17
(b) 25
(c) 24
(d) 16