SOLUTION

1.(d)

5+2*1=7
7+3*2=13
13+4*3=25
25+5*4=45
45+6*5=75.

2.(c)

1^3+1=2
2^3-2=6
3^3+3
4^3-4=60
5^3+5=130
6^3-6=210.

3.(b)

5*2-3=7
7*2-3=11
11*2-3=19
19*2-3=35
35*2-3=67.

4.(b)

16*0.5=8
8*1=8
8*1.5=12
12*2=24
24*2.5=60.

5.(a)

2^2-2=2
3^2-2=7
4^2-2=14
5^2+2=23
6^2-2=34
7^2-2=47.

6.(d)

3840/4=960
960/4=240
240/4=60
60/4=15
15/4=3.75.

7.(a)

25+15=40
40+15=55
55+15=70
70+15=85
85+15=100.

8.(c)

1*2*3=6
2*3*4=24
3*4*5=60
4*5*6=120
5*6*7=210
6*7*8=336.

9.(d)

(52, 44, 36)
52-8=44
44-8=36.
(36, 42, 48)
36+6=42
42+6=48.

10.(b)

5760 /2 = 2880.
2880/3 = 960.
960/4 = 240.
240/5 = 48.
48/6 = 8.

11.(a)
12.(d)
13.(c)
14.(c)
15.(e)
16.(b)
17.(c)
18.(a)
19.(d)
20.(d)
21.(c)
22.(d)

$\therefore$ P men working P hours/day for P days produce P units of work.

$\therefore$ 1 man working 1 hours/day for 1 day produce

$$\frac{P}{P^3} = \frac{1}{P^2} \text{ units of work}$$

$\therefore$ n men working n hors a da for n day's produce $\frac{n^3}{p^1}$ units of work

23.(c)

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

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

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

On adding, 2 (A + B + C)' s 1 day's work

$$= \frac{1}{8} + \frac{1}{12} + \frac{1}{8} = \frac{3+2+3}{24}$$

$$= \frac{8}{24} = \frac{1}{3}$$

$\therefore$ (A + B + C)' s 1 day's work

Hence, the work will be completed in 6 days.

24.(a)

Working 5 hours a day, a can complete a work in 8 days. i.e, A can complete the work in 40 hours.

Similarly,

B will complete the same work in 60 hours.

$\therefore$ (A + B)'s 1 hour's work

$$= \frac{1}{40} + \frac{1}{60} = \frac{3+2}{120} = \frac{5}{120} = \frac{1}{24}$$

Hence, A and B together will complete the work in 24 hours.

$\therefore$ They can complete the work in 2 days working 8 hours a day.

25.(c)

Pat of the tank filled in 1 hour by pipe

$$A = \frac{1}{2}$$

Part of the tank filled by both pipes in 1 hour

So, Time taken to fill $\frac{2}{3}$ part = 60 minutes

$\therefore$ Time taken to fill $\frac{1}{2}$ part $= \frac{60 \times 3}{2} \times \frac{1}{2}$

$= 45$ minutes

$\therefore$ Then tank will be filled at 11 : 45 A.M.

26.(a)

When three tapes are opened together then part of the tank emptied in 1 hour

$$= \frac{1}{3} + \frac{1}{3\frac{3}{4}} - 1 = \frac{1}{3} + \frac{1}{\frac{15}{4}} - 1$$

$$= \frac{1}{3} + \frac{4}{15} - 1$$

$$= \frac{5 + 4 - 15}{15} = \frac{-6}{15} = \frac{-2}{5}$$

$\therefore$ Time taken to empty the half tank

$$= \frac{5}{4} \text{ hours}$$

$= 1$ hour 15 minutes

27.(d)

Volume of tank

$$= (1.2)^3 = 1.728 \text{ m}^2$$

$64 \times$ volume of one bucket

$$= \frac{2 \times 1.728}{3} \text{ m}^3$$

Volume of one bucket

$$= \left(\frac{1.728 \times 2}{3 \times 64}\right) \text{m}^2$$

$$= 0.018 \text{ m}^2$$

$$= (0.018 \times 1000) \text{ litre}$$

28.(b)

60 ← (Total capacity)

Efficiency → 6 | 5 | −10 | 6 + 5 − 10 = 1 ← Efficiency

Time → P = 10 Q = 12 C = 6 P+Q+C=

Total capacity $= 60$

$\frac{1}{4}$ capacity $= 60 \times \frac{1}{4} = 15$

(A + B) can fill the tank

$$= \frac{15}{1} = 15 \text{ hours.}$$

Total time $= 7$ am $+ 15$ hours

$= 10$ pm

29.(b)

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Efficiency → 7 | 6 ← Efficiency

A = 3 hour A = $3\frac{1}{2} = \frac{7}{2}$ hours

Top A will empty the tank

$$= \frac{21}{7-6} = \frac{21}{1} = 21 \text{ hour}$$

30. (d)

Amit's income = Rs. $3x$ and his expenditure = Rs. $5y$

Veeri's income = Rs. $2x$ and his expenditure = Rs. $3y$

$\therefore \quad 3x - 5y = 2x - 3y$

$\Rightarrow \quad x = 2y$

$\therefore \quad 3x - 5y = 1000$

$\Rightarrow \quad 6y - 5y = 1000 \Rightarrow y = 1000$

$\therefore \quad x = 2000$

$\therefore$ Amit's income $= 3x = 3 \times 2000 =$ Rs. 6000

31. (b)

A's monthly income = Rs. $8x$

A's monthly expenditure = Rs. $5y$

B's monthly income = Rs. $5x$

B's monthly expenditure = Rs. $3y$

According to the question

$$8x - 5y = 12000$$

$$5x - 3y = 10000$$

By equation (i) $\times 3$ – (ii) $\times 5$

$$24x - 15y = 36000$$

$$25x - 15y = 5000$$

$$- \quad + \quad -$$

$$-x = -14000$$

$\Rightarrow \quad x = 1400$

Difference between monthly incomes of A and B

$= 8x - 5x$

$= 8x - 5x =$ Rs.

$=$ Rs. $(3 \times 14000) =$ Rs. 42000

32. (b)

Number of 1-rupee coins = x

Number of 50 paise coins = $4x$

Number of 25 paise coins = $2x$

$\therefore$ Ratio of their values

$$= x : \frac{4x}{2} : \frac{2x}{4} = 2 : 4 : 1$$

$\therefore$ Value of 50-paise coins

$$= \frac{4}{7} \times 56 = \text{Rs. } 32$$

$\therefore$ Their number $= 32 \times 2 = 64$