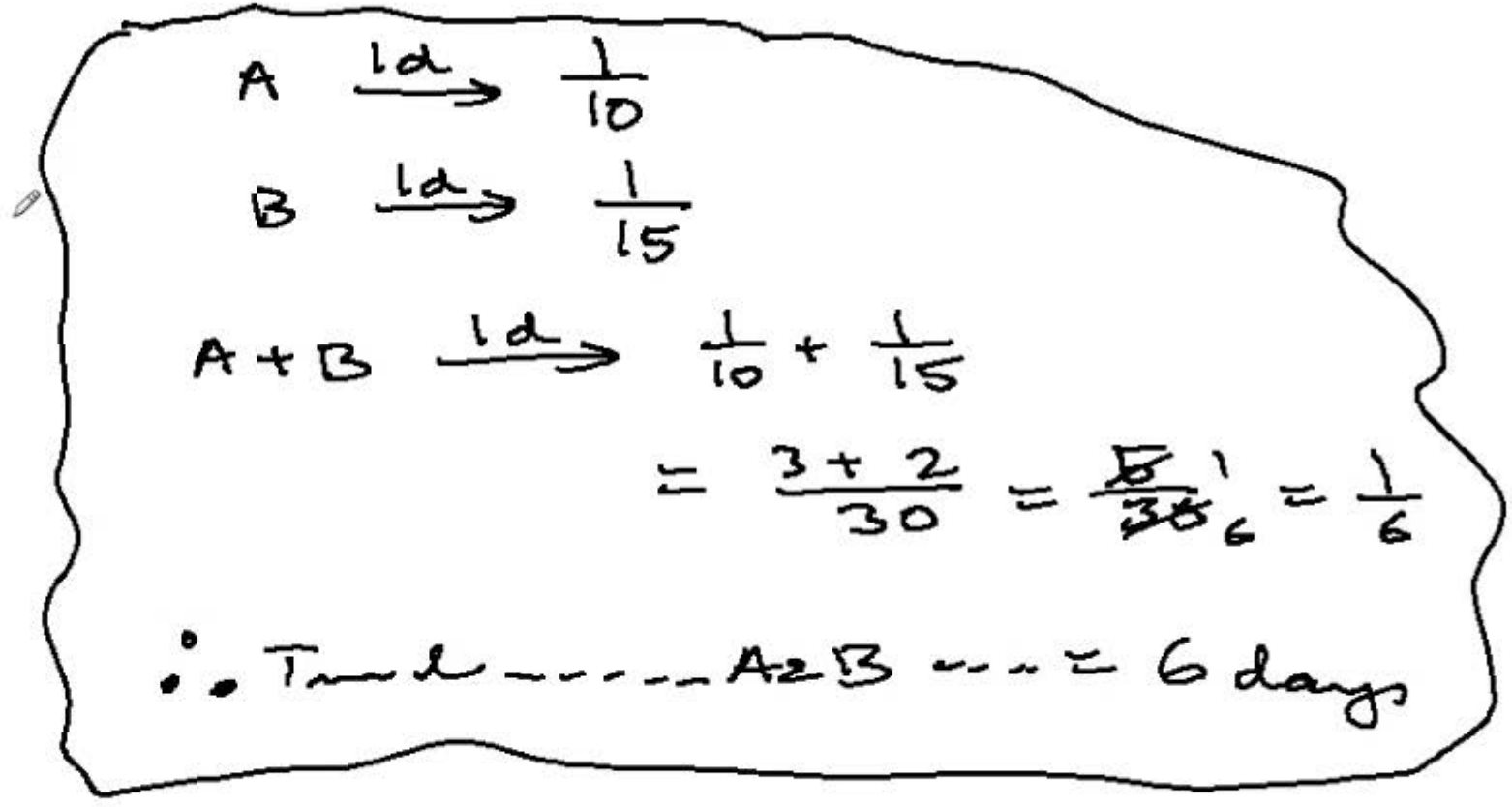
A does a piece of work in 10 days. B does the same work in 15 days. Find the time taken by A and B together to do the whole work ?



A does a work in 10 days, B in 15 days, C in 20 days, and D destroys the same work in 30 days. A and B start doing the work. 2 days later B leaves. 1 day later C joins. Again after 2 days A leaves. 3 days later D joins. C and D complete the remaining work. Find the time taken for the work to get completed.

10 15 20 30 WR=60 u

20 30 60

A → 6u

B → 4u

C → 3u

D → -2u

A+B 1d → 10u

2d → 20u

A 1d → 6u

C+D 1d → 3-2=1u

A+C 1d → 9u

2d → 18u

C 3d → 9u

2d 20 40u

3d 6 34u

5d 18 16u

15d { 8d 9 7u
7d

3 mins → 22d & 15

3.5 mins → 7d + 8 = 14 (2)

4 mins → 6d

6 mins → 8d

A does a work in 10 days, B in 15 days, C in 20 days, and D destroys the same work in 30 days. A and B start doing the work. 2 days later B leaves. 1 day later C joins. Again after 2 days A leaves. 3 days later D joins. C and D complete the remaining work. Find the time taken for the work to get completed.

10 15 20 20 WR=60 u

20 30 60

A → 6u

B → 4u

C → 3u

D → -2u

A+B 1d → 10u

2d → 20u

A 1d → 6u

C+D 1d → 3-2=1u

CumDays	days	WR	WR left
2d	2d	20u	40u
3d	1d	6u	34u
5d	2d	18u	16u
15d	8d	9u	7u
	7d		

A+C 1d → 9u

2d → 18u

C 3d → 9u

3 mins → 22d & 15

3.5 mins → 7d + 8 = 14 (2)

4 mins → 6d

6 mins → 8 days

- A, B and C together can do a work in 22 days. B and C can do $\frac{3}{4}$ of work in 30 days. In how many days can A alone do the work?

  (A) $47\frac{8}{9}$ (B) $48\frac{7}{9}$

  (C) $48\frac{8}{9}$ (D) $47\frac{7}{9}$

- P and Q together can do a work in 32 days, P and R together in 48 days, R and Q together in 24 days. In how many days can P alone do the same work?

  (A) 64 (B) 192 (C) 128 (D) 84

- A can do a work in 21 days and B in 28 days. Together they started the work and B left after 4 days. In how many days A alone can do the remaining work?

  (A) 12 (B) 10 (C) 16 (D) 14

- P is twice as fast as Q and R together. Working together, all three can do a work in 21 days. In how many days can Q and R together do the work?

  (A) 48 (B) 63 (C) 54 (D) 72

LCM (22 20) = (2 × 11 × 20)

We = (2 × 11 × 20) m

A + B + C $\xrightarrow{1d}$ 20m

B + C $\xrightarrow{1d}$ 11m

A $\xrightarrow{1d}$ 9m

A can do $\frac{2 \times 11 \times 20}{9} = \frac{440}{9} = 48\frac{8}{9}$

d

- A, B and C together can do a work in 22 days. B and C can do $\frac{3}{4}$ of work in 30 days. In how many days can A alone do the work?

  (A) $47\frac{8}{9}$ (B) $48\frac{7}{9}$

  (C) $46\frac{8}{9}$ (D) $47\frac{7}{9}$

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  (A) 64 (B) 192 (C) 128 (D) 84

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- P is twice as fast as Q and R together. Working together, all three can do a work in 21 days. In how many days can Q and R together do the work?
  (A) 48 (B) 63 (C) 54 (D) 72

8 | 32 48 24
2 | 4 6 3
3 | 2 3 3
2 1 1

Wk = 96 m

P+Q 1d → 3m

P+R 1d → 2m

R+Q 1d → 4m

2(P+Q+R) 1d → 9m

P+Q+R 1d → 4.5m

∴ P 1d → 4.5 − 4 = 0.5

No of days = $\frac{96}{0.5}$ = 192d

- A, B and C together can do a work in 22 days. B and C can do $\frac{3}{4}$ of work in 30 days. In how many days can A alone do the work?
  (A) $47\frac{8}{9}$ (B) $48\frac{7}{9}$
  (C) $48\frac{8}{9}$ (D) $47\frac{7}{9}$

- P and Q together can do a work in 32 days, P and R together in 48 days, R and Q together in 24 days. In how many days can P alone do the same work?
  (A) 64 (B) 192 (C) 128 (D) 84

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  (A) 48 (B) 63 (C) 54 (D) 72

$Q+R \xrightarrow{1d} x$ m

$P \xrightarrow{1d} 2x$ m

$P+Q+R \xrightarrow{1d} 3x$ m

$\xrightarrow{21d}$ $21 \times 3x = 63x$ m

Total Wk

- P and Q can do a work in 14 and 21 days respectively. P started the work and after 9 days Q joined him If the total earnings for the work are ₹280, what is the share of P?
  (A) ₹210 (B) ₹240 (C) ₹225 (D) ₹180

- 8 men or 12 women or 20 boys can do a work in 36 days. In how many days can 6 men, 12 women and 10 boys together do the work?
  (A) 14 (B) 12 (C) 10 (D) 16

- Eight men and six boys can do a work in eleven days, and nine men and twelve boys can do the work in nine days. In how many days can six men and thirty boys together do the work?
  (A) 11 (B) 8 (C) 10 (D) 9

- Vinay and Varma can do a work in 30 days and 60 days respectively. If they work on alternate days beginning with Vinay in how many days will the work be completed?
  (A) 45 days (B) 35 days
  (C) 40 days (D) 50 days

- P and Q can do a work in 14 and 21 days respectively. P started the work and after 9 days Q joined him If the total earnings for the work are ₹280, what is the share of P?
  (A) ₹210 (B) ₹240 (C) ₹225 (D) ₹160

- 8 men or 12 women or 20 boys can do a work in 36 days. In how many days can 6 men, 12 women and 10 boys together do the work?
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  (C) 40 days (D) 50 days

We = 42m

P 1d → 3m

Q 1d → 2m

P+Q 1d → 5m

P 12d → 36m

Q 2d → 6m

P 9d → 27m

We left = 42 − 27

= 15m

P+Q 15m → $\frac{15}{5}$ = 3d

P : Q = 36m : 6m = 6 : 1

P = $\frac{6}{7} \times 280^{40} = 6 \times 40 = 240$

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8m $\xrightarrow{36d}$ 36m

8m $\xrightarrow{1d}$ 1m

6m $\xrightarrow{1d}$ $\frac{6}{8}m = \frac{3}{4}m$

12w $\xrightarrow{36d}$ 36m

12w $\xrightarrow{1d}$ 1m

20b $\xrightarrow{36d}$ 36m

20b $\xrightarrow{1d}$ 1m

10b $\xrightarrow{1d}$ $\frac{1}{2}m$

Wk = 36m

$\frac{36}{9/4} = 36 \times \frac{4}{9} = 16d$

6m+12w+10b $\xrightarrow{1d}$

$\frac{3}{4}+1+\frac{1}{2}$

$= 2\frac{1}{4}m$

$= \frac{9}{4}m$

BPPIMT 4th Yr - Paint

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  (A) 45 days (B) 35 days
  (C) 40 days (D) 50 days

$8m+6b \to 11d$ $9m+12b \to 9d$

$4m+3b \to 22d$ $3m+4b \to 27d$

LCM of 22 & 27 = (22×27)

$\frac{22\times27}{66} = 9d$

Wk = (22×27)u

$4m+3b \xrightarrow{1d} 27u$

$3m+4b \xrightarrow{1d} 22u$

$7m+7b \xrightarrow{1d} 49u$

$1m+1b \xrightarrow{1d} 7u$

$1m \xrightarrow{1d} \frac{7+5}{2} = 6u$

$1b \xrightarrow{1d} \frac{7-5}{2} = 1u$

$1m-1b \xrightarrow{1d} 5u$

$6m+30b \xrightarrow{1d} 66u$

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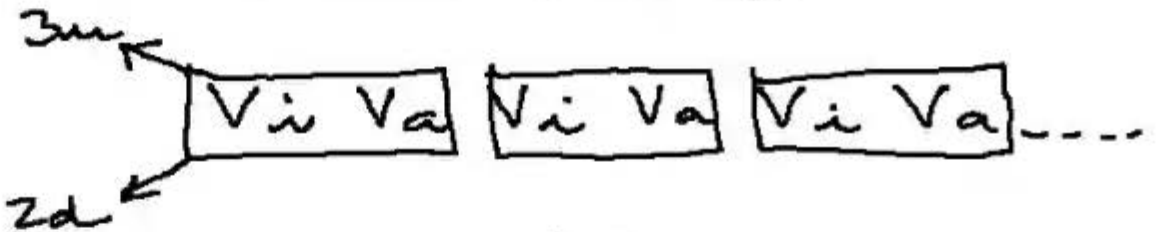
Wk = 60 m

Vinay $\xrightarrow{1d}$ 2 m
Varma $\xrightarrow{1d}$ 1 m
} Vi + Va $\xrightarrow{2d}$ 3 m



$\frac{60\,m}{3\,m} = 20$ comp

$\times 2$

40 d ✓

- P is twice as fast as Q and R together. Working together, all three can do a work in 21 days. In how many days can Q and R together do the work?
  (A) 48 (B) 63 (C) 54 (D) 72

7.38 pm

- Two pipes can fill a tank in 30 minutes and 20 minutes respectively. If they are opened simultaneously, in what time will the tank become full?
  (A) 15 minutes (B) 12 minutes
  (C) 18 minutes (D) 9 minutes

- Pipe A can fill a tank in 6 hours. Due to a leak at the bottom it takes 9 hours to fill the tank. In what time the leak alone can empty the full tank?
  (A) 16 hours (B) 15 hours
  (C) 18 hours (D) 17 hours

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2. A can do a piece of work in 20 days, while B can do it in 30 days. A and B along with C finish the work in 6 days. Find the share of wages of each of them from a total of Rs 1,000/-.

3. A and B together complete a work in 12 days. They work together for 9 days after which B leaves. A completes the remaining work in 5 days. In how many days will B alone complete the whole work.

4. A+B together complete a work in 24 days, B+C in 40 days and C+A in 30 days. Find the number of days in which each of them would complete the work.

5. 4 boys or 6 girls can do a piece of work in 18 days. In how many days will 4 boys and 3 girls working together complete the work.

6. 6 women and 2 men together take 10 days to do a work. 4 women and 8 men take 5 days to do the same work. Find the number of days in which 8 women and 6 men do the job.

7. A working alone takes 80 days more than A+B working together to complete a work. B working alone takes 20 days more than A+B working together to complete a work. Find the time taken by A alone to complete the work.

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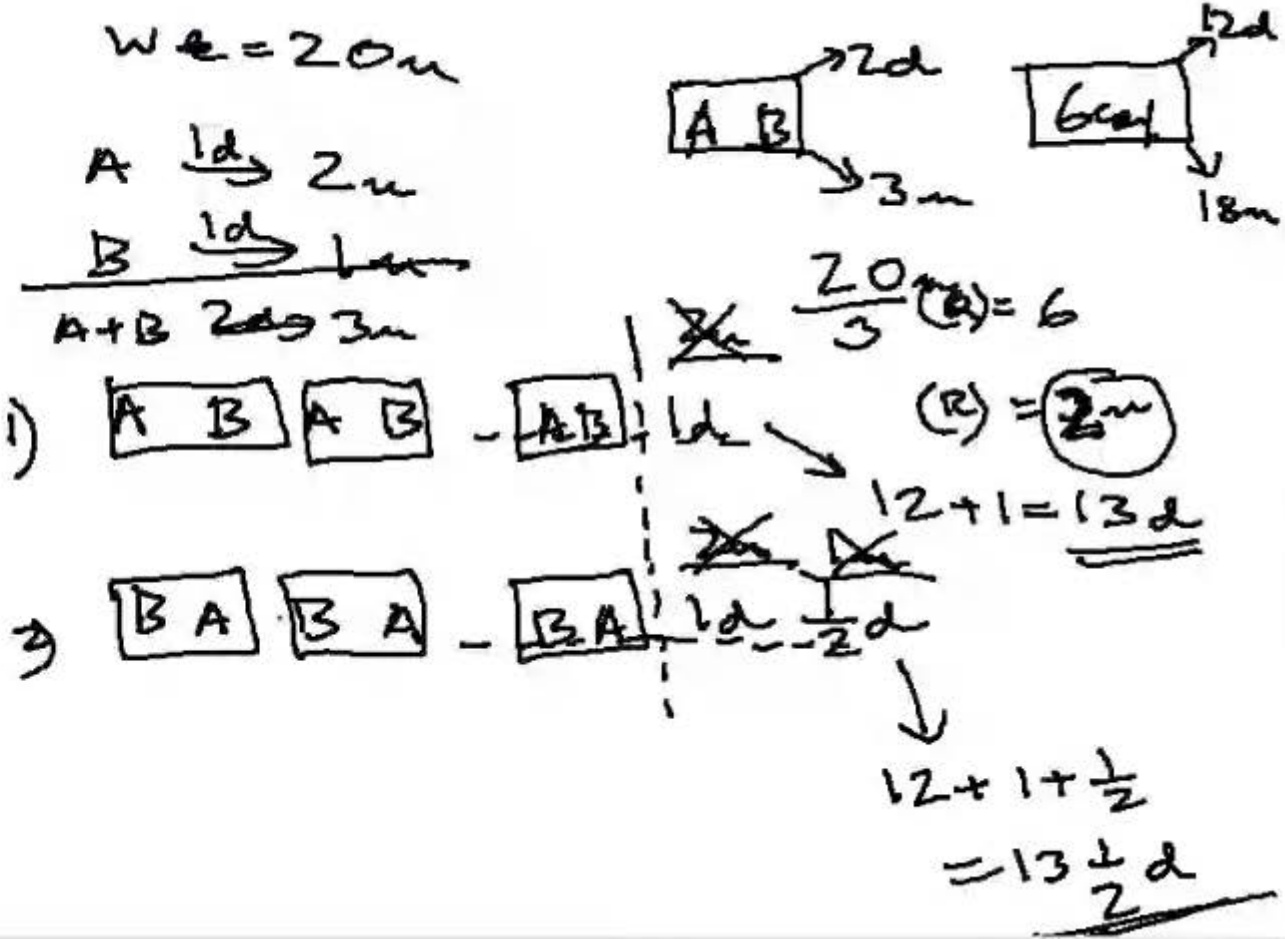

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Wk = 60 u

Share Ratio as Capacity

A $\xrightarrow{1d}$ 3u

B $\xrightarrow{1d}$ 2u

A+B+C $\xrightarrow{1d}$ 10u

C $\xrightarrow{1d}$ 10 − (3+2) = 5u

$W_A : W_B : W_C = 3 : 2 : 5$

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LCM of 12 & 5 = 60

∴ Wk = 60 m

A+B $\xrightarrow{1d}$ 5 m

A+B $\xrightarrow{9d}$ 45 m

Wk left = 15 m

A $\xrightarrow{5d}$ 15 m

A $\xrightarrow{1d}$ 3 m

B $\xrightarrow{1d}$ 5 − 3 = 2 m

$\frac{60}{2}$

= 30 d

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LCM of 24, 40 & 30 = 120

Let wk = 120u

A+B $\xrightarrow{1d}$ 5u

B+C $\xrightarrow{1d}$ 3u

C+A $\xrightarrow{1d}$ 4u

2(A+B+C) $\xrightarrow{1d}$ 12u

(A+B+C) $\xrightarrow{1d}$ 6u

A $\xrightarrow{1d}$ 6−3 = 3u → $\frac{120}{3}$ = 40d

B $\xrightarrow{1d}$ 6−4 = 2u → $\frac{120}{2}$ = 60d

C $\xrightarrow{1d}$ 6−5 = 1u → $\frac{120}{1}$ = 120d

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Let W.k = 18 m

$4b \xrightarrow{1d} 1m$

$6g \xrightarrow{1d} 1m$

$\therefore 3g \xrightarrow{1d} \frac{1}{2}m$

$4b+3g \xrightarrow{1d} 1+\frac{1}{2} = \frac{3}{2}m$

$\frac{18}{3/2} = 18^{6} \times \frac{2}{3} = 12d$

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6w + 2m → 10d

3w + 1m → 20d. ----- (1)

4w + 8m → 5d

1w + 2m → 20d ----- (2)

4w + 3m → 10d

8w + 6m → 5d

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Let (A+B) → T d 40d

A → (T+80) d 120d

B → (T+20) d 60d

LCM of T, (T+80), (T+20)

= T(T+80)(T+20)

Let WQ = T(T+80)(T+20)m

A+B $\xrightarrow{1d}$ (T+80)(T+20)m

A $\xrightarrow{1d}$ T(T+20)m

B $\xrightarrow{1d}$ T(T+80)m

A+B $\xrightarrow{1d}$ T(T+20) + T(T+80)

T(T+20) + T(T+80)

= (T+80)(T+20)

$T^2+20T+T^2+80T = T^2+80T+20T$

$+80.20$

$T^2 = 1600 \Rightarrow T = 40$

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Let (A+B) → T d 40d

A → (T+80) d 120d

B → (T+20) d 60d

A+B → $\sqrt{80 \times 20}$ = 40

LCM of T, (T+80), (T+20)

= T(T+80)(T+20)

Let WQ = T(T+80)(T+20)m

A+B $\xrightarrow{1d}$ (T+80)(T+20)m

A $\xrightarrow{1d}$ T(T+20)m

B $\xrightarrow{1d}$ T(T+80)m

A+B $\xrightarrow{1d}$ T(T+20) + T(T+80)

T(T+20) + T(T+80) = (T+80)(T+20)

$T^2+20T+T^2+80T = T^2+80T+20T$

$+80.20$

$T^2 = 1600 \Rightarrow T = 40$

8. A takes twice as long as B and C together to do a certain work. B takes three times as long as A and C together. They together can finish the work in 10 days. How many days would they respectively take working separately.

$A \rightarrow 2(B+C)$ 3✓

$B \rightarrow 3(C+A)$ 4✓

$A+B+C \rightarrow 10d$ ✓

$A+B+C \xrightarrow{1d} 12m$

$C \xrightarrow{1d} 12-(4+3)=5m$

$\rightarrow \frac{120}{5}=24d$

$Wk = 10 \times 2 \times 3 = 60m$ $10 \times 3 \times 4$

$= 120m$

① $A + 2A \xrightarrow{1d} (B+C) + A$

$3A \xrightarrow{1d} (A+B+C) = 12m$

$1A \xrightarrow{1d} \frac{12}{3} = 4m \rightarrow \frac{120}{4} = 30d$

② $B + 3B \xrightarrow{1d} (C+A) + B$

$4B \xrightarrow{1d} (A+B+C) = 12m$

$1B \xrightarrow{1d} \frac{12}{4} = 3m \rightarrow \frac{120}{3} = 40d$

9. A does a piece of work in 10 days, B in 15 days, C in 20 days and D destroys the work in 30 days. A+B start the work. After 2 days B leaves. 1 day later C joins. A leaves after 2 days. 1 day later D joins and both C and D complete the work. What was the total time taken for the work.

10. 10 carpenters can make 10 chairs in 10 days working for 10 hours a day. How many chairs can 30 carpenters can make in 30 days working for 20 hours.

11. Meera is 1.5 times faster than Maya. If Maya can do a work in 15 days, how long will it take for both of them to do it together.

12. X, Y and Z can do a job in 24, 30 and 40 days respectively. X works alone for the 1st day, then Y works alone for next 2 days, then Z works alone for next 3 days and so on. On which day will the job end ?

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Home View
Paste Cut Copy Clipboard
Select Crop Resize Rotate Image
Tools
Brushes
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10c → 10d → @10h/d → 10ch

30c → " → " → $\frac{10}{10} \times 30 = 30$ ch

" → 30d → " → $\frac{30}{10} \times 30 = 90$ ch

" → " → @20/h/d → $\frac{90}{10} \times 20 = 180$ ch

3030, 3054px 10800 × 4496px Size: 3.6MB 100%

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Maya $\xrightarrow{1d}$ 2 m

Meera $\xrightarrow{1d}$ 3 m

Ma+Me $\xrightarrow{1d}$ 5 m

Wk = 15 × 2 = 30 m

$\frac{30}{5} = 6d$

12. X, Y and Z can do a job in 24, 30 and 40 days respectively. X works alone for the 1st day, then Y works alone for next 2 days, then Z works alone for next 3 days and so on. On which day will the job end ?

LCM of 24, 30 & 40 = 120

$\therefore$ W.k = 120 u

X $\xrightarrow{1d}$ 5u

Y $\xrightarrow{1d}$ 4u

$\xrightarrow{2d}$ 8u

Z $\xrightarrow{1d}$ 3u

$\xrightarrow{3d}$ 9u

X + Y + Z $\xrightarrow{6d}$ 22u

$\boxed{5 \text{ cap}}$ → 6d × 5 = 30d

→ 22u × 5 = 110u

$\frac{120u}{22u}$ (Q) = 5

(R) = 10u

~~10u~~ ~~5u~~ ~~1u~~

X Y Y

1d 1d $\frac{1}{4}$d

31st 32nd 33rd day