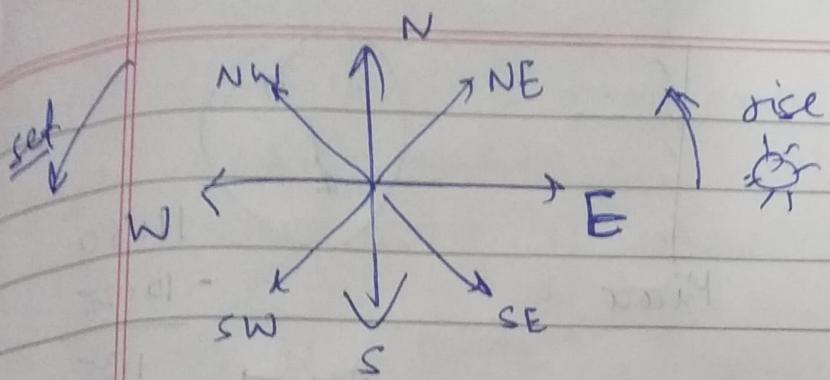


① Direction

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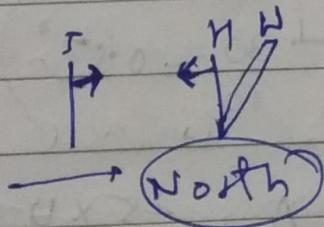


- ① After sunrise,
Joe was standing facing pole
Shadow of pole fell to his right

Ans → shadow of pole → west (opp of E)
South at right is west.

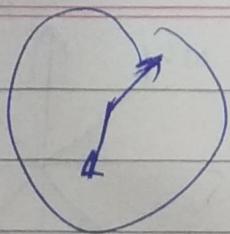
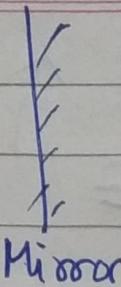
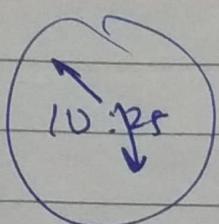
- ② James & Henry face each other
Morning.
Shadow of Henry to his right only.
James facing which dirn.

Ans →



(2) Clock

(1)



11:60

$$\begin{array}{r} - 10:25 \\ \hline 1:35 \end{array}$$

Ans →

(2)

11:25

11:60

$$- 11:25$$

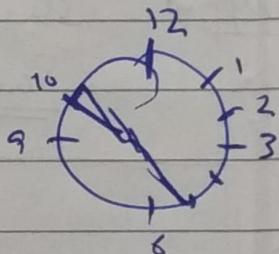
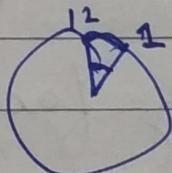
$$\underline{00:35}$$

$$12:35 \text{ Ans}$$

(3)

10:25

Angle b/w —



$$\frac{360}{12} = 30^\circ$$

$$150^\circ + \Delta$$

$$1\text{hr} \rightarrow 60\text{min} \rightarrow 30^\circ$$

$$1\text{hr} \rightarrow 1\text{min} \rightarrow \frac{30}{60} = 0.5^\circ$$

$$\Delta = 25 \times 0.5 \Rightarrow 12.5$$

$$\text{Ans} = \underline{162.5^\circ}$$

(4) Clock loses 5 min every hr
11 AM Monday.

* When will it show correct time again?

\Rightarrow Broken clock is always right 2 tiny
a day

\Rightarrow Losing/Gaining may not be

\Rightarrow 12 hrs - correct atleast once.

Any 5 min \rightarrow 1 hr - ①

12 hr \rightarrow 5 11

1 hr \rightarrow 5 \times 60 \Rightarrow 144 hrs

12 Sunday 11 AM.

(5) 2: AM Right Time Thursday

gains 20 sec every 3 hr

Friday 6:30 PM - ? time on clock

$$24 + 12 + 4.5 \Rightarrow 40.5 \text{ hrs}$$

$$3 \text{ hr} \rightarrow 20 \text{ sec}$$

$$40.5 \rightarrow \frac{20}{3} \times 40.5 \Rightarrow 270 \text{ sec}$$

$$\Rightarrow 4.5 \text{ min}$$

Any \rightarrow 6: 34:30 PM

① Statement & Conclusion

S: Petrol rate

C: should be used efficiently

ADVICE | RESULT — TRUE

② Cause & Effect

③ Arguments

Strong

Weak

• Nation, fact,
Education, development

Comparison, Ambiguous,
Each, Nothing, All,
only, every,
exaggeration

④ Statement & Assumption) | future, against ↳ false indicated

- If Statement generalised &
Assumption is specific — false

Syllogism

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Venn

Possibility

I E | Venn

(normal form)

(C: some
by chance,
possibility)

① Statement: I E

1. Some ⁵⁰₁₀₀ bottles are glass
2. All ⁵⁰₁₀₀ glasses are cables

Conclusion: (E)

1. No ¹⁰⁰₅₀ glasses are cables X
2. Some ¹⁰⁰₅₀ cables are bottles ✓

	E 1	E 2	
All	100	50	
None	100	100	
Some	50	50	
Some not	50	100	

$$\underline{I \geq E}$$

C: S:
C - S b - (J) - C

one must be

100
otherwise
check

(1)

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(1) Fraction of $0.35\overline{233}$

$$\Rightarrow \frac{35233 - 35}{99900}$$

(2) $0.15\overline{268}$

$$\frac{15268 - 0}{99999}$$

(3) Which is larger?

$$\frac{5}{8}, \frac{3}{7}$$

$$\frac{5 \times 7}{35} > \frac{8 \times 3}{24}$$

$$\therefore \frac{5}{8} > \frac{3}{7}$$

(4) Permutation - Select $\rightarrow {}^n P_r = \frac{n!}{(n-r)!}$
8 arrange

Combination - Select ~~Arrange~~ $= {}^n C_r$
 $= \frac{n!}{(n-r)! r!}$

Boat & Streams

(2)

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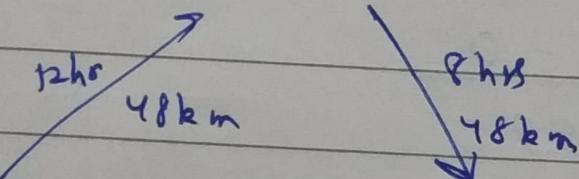
(1)

12 hrs to row 48 km upstream
8 hrs to " " downstream.

Speed of river -? (y)

" " boat in still water -? (x)

Ans



$$S_1 = \frac{48}{12} = 4 \text{ km/hr}$$

$$S_2 = \frac{48}{8} = 6 \text{ km/hr}$$

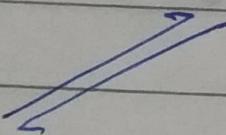
$$(x - y) = 4$$

$$(x + y) = 6$$

$x = 5$
$y = 1$

Ans

(2)



time for 2 way journey \rightarrow 1 hr
distance = ?

speed of river = 2.4 km/hr

" " " boat - 12 km/hr (in still water)

$$\frac{d}{(x+y)} + \frac{d}{(x-y)} = 1$$

$$\Rightarrow d = \underline{\hspace{2cm}}$$

(3)

classmate

Date _____
Page _____HCF & LCM

① $[\text{Lcm} \times \text{Hcf} = a \times b]$

- ② If $(x-4)$ is hcf of $(x^2 - 8x + 15)$ &
 find k.
- \uparrow factor
- $(x^2 - kx - 1)$

$$\begin{aligned} x^2 - 8x + 15 &= 0 && \left\{ \text{for } x = 4 \right. \\ x^2 - kx - 1 &= 0 && \left. \underline{\quad} \right\} \end{aligned}$$

(3)

3 cyclist

1 round in

- 27 min

- 45 min

- 63 min resp

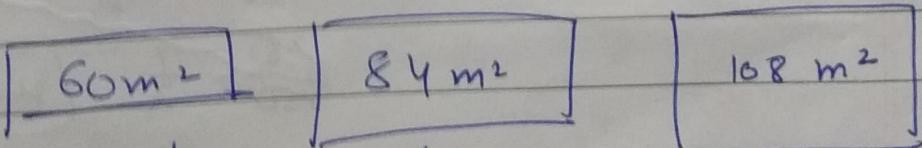
when will they meet again at starting pos?

$$\begin{array}{r} 27, 45, 13 \\ \hline 9 \\ 3, 5, 7 \end{array}$$

$$lcm = 9 \times 3 \times 5 \times 7$$

LCM

(4)



Identical flower beds

$l = 6 \text{ m}$

$$\begin{aligned} 60 &= 2^3 \times 5 \times 3 \\ 84 &= 2^2 \times 3 \times 7 \end{aligned}$$

$$108 = 2^3 \times 3^3$$

$$\begin{aligned} HCF &\Rightarrow 2^2 \times 3 \\ &\Rightarrow 12 = l \times b \end{aligned}$$

$$b = 2 \text{ m} \text{ Ans}$$

60	84	108
2	2	2
30	42	54
5	7	9
6	14	27
30	42	54
5	7	9
6	14	27
30	42	54

(1)

 $A \rightarrow 10 \text{ days} ; B \rightarrow 15 \text{ days}$

days? - If they work together

 $A - 10 \text{ days} - x \text{ work}$ $B - 15 \text{ days} - x \text{ work}$

$$A_{\text{eff}} = \left(\frac{x}{10} \right)$$

$$B_{\text{eff}} = \left(\frac{x}{15} \right)$$

$$A - 1 \text{ day} - \frac{x}{10} \quad \mid \quad B - 1 \text{ day} - \frac{x}{15}$$

$$\Rightarrow \frac{x}{10} + \frac{x}{15} = 1$$

$$\Rightarrow \frac{25x}{150} = 1$$

$$\Rightarrow \frac{x}{6} = 6 \text{ days}$$

$$10, 15 \rightarrow \text{LCM} \rightarrow 30$$

$$\begin{array}{ccc} & 30 & \\ 10 & + & 15 \\ & 2 & \end{array}$$

$$B_1 = \frac{30}{5} = 6$$

$$\frac{1}{10} + \frac{1}{15} = \frac{1}{2}$$

$$\frac{25}{150} = \frac{1}{2} \quad \boxed{n=8}$$

- (2) A takes - 9 hrs to build a wall
 B — 10 hrs
 If they work together — 10 bricks left per hour
 and build a wall in 5 hours
 Total bricks — ?

Ans →

$$\begin{array}{c} 90 \\ 10 + 9 = 19 \\ \diagdown \quad \diagup \\ 9 \qquad 10 \end{array}$$

$$\begin{array}{r} 3 | 9, 10 \\ 3 | 3, 10 \\ \hline 3 | 1, 2 \\ \hline 1, 2 \end{array}$$

If they work together $\frac{90}{19} = 4.7$ hrs

But $\frac{90}{x} = 5$ hrs $\Rightarrow x = 18$

$$\begin{array}{r} 19 - 18 = 1 \text{ brick diff} \rightarrow 90 \\ 10 \quad " \quad " \rightarrow 900 \text{ bricks} \end{array}$$

- (3) A does half as much work as B in $\frac{1}{6}$ th of time

~~$A = \frac{B}{2}$~~

together complete in 10 days

B to do it alone — days ?

Ans →

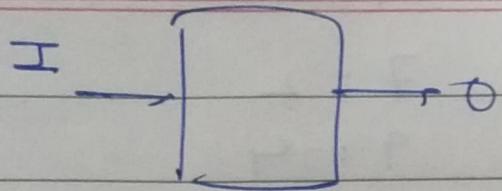
$$\begin{array}{c} \frac{1}{2} \\ \diagdown \quad \diagup \\ x/6 \qquad x \end{array}$$

$$\begin{array}{c} y \\ \diagdown \quad \diagup \\ x/3 \qquad x \end{array}$$

$$\frac{3}{x} + \frac{1}{x} = \frac{1}{10}$$

$$x = 40 \text{ days}$$

(2)



If O is closed, I can fill in 5 hr

If O is opened, 10 hr

If O is open, time to half tank

$$1 \text{ CM} \rightarrow 40$$

$$\begin{array}{r} 40 \\ 8 + 4 = 9 \\ \hline 1 \quad 40 \end{array}$$

$$\begin{array}{r} 2 \mid 6, 10 \\ 2 \mid 4, 5 \\ 2 \mid 2, 5 \\ \hline 1 \end{array}$$

$$I \rightarrow 5 \text{ ltr}$$

$$I + O \rightarrow 4$$

$$O \rightarrow 1$$

$$20 \text{ ltr} \rightarrow 20 \text{ hr}$$

6

Mixture & ratio

classmate

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M : w

1

Bottle 1

7 : 2

" 2

9 : 4

3 : 1

Bottle 1 : Bottle 2

3

$$\Rightarrow \frac{7}{9}x + \frac{9}{13}y = \frac{3}{4}(x+y)$$

$$\Rightarrow \frac{7}{9} \quad \frac{9}{13}$$

$\frac{9}{13} - \frac{3}{4} = \frac{3}{52}$ $\frac{7}{9} - \frac{3}{4} = \frac{1}{36}$

$$\frac{3}{52} \div \frac{1}{36} \Rightarrow \left(\frac{27}{13} \right) \text{ Ans}$$

2

$$m:w = 3:5$$

$m:w = 3:7$

initial quantity of bottle

$$2 \rightarrow 10 \text{ lt}$$

$$8 \rightarrow 40 \text{ lt}$$

(3)

100% water

50% water
50% wine

water: wine

$$100 \text{ L W} + 50 \text{ L W} + 50 \text{ L W in}$$

$$\frac{150}{50} = \frac{3}{1}$$

(4)

x
420 Rs/kg

y
520 Rs/kg

$$480 \text{ Rs/kg}$$

$$40 \quad 60$$

$$\frac{y}{6} = \left(\frac{1}{3} \right) x$$

(5)

80 L \rightarrow 45% milk

how much milk added to make
75% milk

$$\frac{80 \times 45}{100} = 36 \text{ L}$$

~~$$\frac{(80+M)}{(36+M)}$$~~

$$\frac{(36+M)}{(80+M)} = \frac{75}{100}$$

$$M = 96 \text{ L}$$

(7)

classmate

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Q

38 student

no of student + 7

extra inc by 42 Rs
of meal

avg per head dec by 1

original each meal = 21

~~$$38 \rightarrow m$$~~
~~$$42 \rightarrow m + 42$$~~

~~$$\begin{array}{r} x \\ 35 \\ \hline - \\ 38 \end{array} \quad \begin{array}{r} 0 \\ 0 \\ 0 \\ 0 \\ + 42 \\ \hline 42 \end{array}$$~~

~~$$\begin{array}{r} 35 \\ \hline - \\ 42 \end{array} \quad \text{dec}$$~~

~~$$\begin{array}{r} 35 \\ 35 \\ \hline x - 1 \\ \hline 82 \end{array}$$~~

$$35x = m$$

- ①

$$42(x-1) = m + 42 \quad - ②$$

$$\begin{array}{r} m = 420 \text{ Rs} \\ x = \underline{\hspace{2cm}} \end{array}$$

$$20 \rightarrow 20 \times 1.05$$

$$= 5\% \rightarrow 20 \times 0.95$$

(1) A increases by 5%.

$$A + \frac{A \times 5}{100} = \frac{105}{100}A \Rightarrow A \times \frac{105}{100} = 1.05$$

(2) Ram - flat - 1 Lakh

Ram - pot - 1.1 Lakh

Flat \uparrow annually by 10%

Flat \uparrow , " " \textcircled{B} 5%.

After 2 yrs.

$$1,00,000 \times \frac{110}{100} \times \frac{110}{100} = 1,21,000$$

$$1,21,000 \times \frac{105}{100} \times \frac{105}{100} = \underline{\quad}$$

(3) rate of inflation - 1000%.
CRS - 2 yrs. - ?

$$6 \times \frac{1100}{100} \times \frac{1100}{100} = \underline{\quad}$$

♀

Interest earned =?

P = 6400 for t = 6 months

r = 25%

compounded quarterly.

CI - ~~Q~~ $\Rightarrow 6400 \left(1 + \frac{25}{100 \times 4} \right)^{4 \times \frac{1}{2}}$

$$\Rightarrow 6400 \left(\frac{17}{16} \right)^2$$