GATE

ALL BRANCHES

GENERAL APTITUDE

Quantitative Aptitude

Lecture No: 07

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TOPICS TO BE COVERED

1. More on Time & Work
2. Understanding Pipes & Cistern
3. Concept of Contract Share
4. Questionnaire on the Topic

Q. A can do a work in 10 days whereas B in 20 days and C in 60 days. They started the work together. But A left at the end of 3rd day and B left at the end of 5th day. Then the remaining work was done by C in how many days?

A. 27

B. 22

C. 35

D. 44

$A = \frac{1}{10}$; $B = \frac{1}{20}$; $C = \frac{1}{60}$

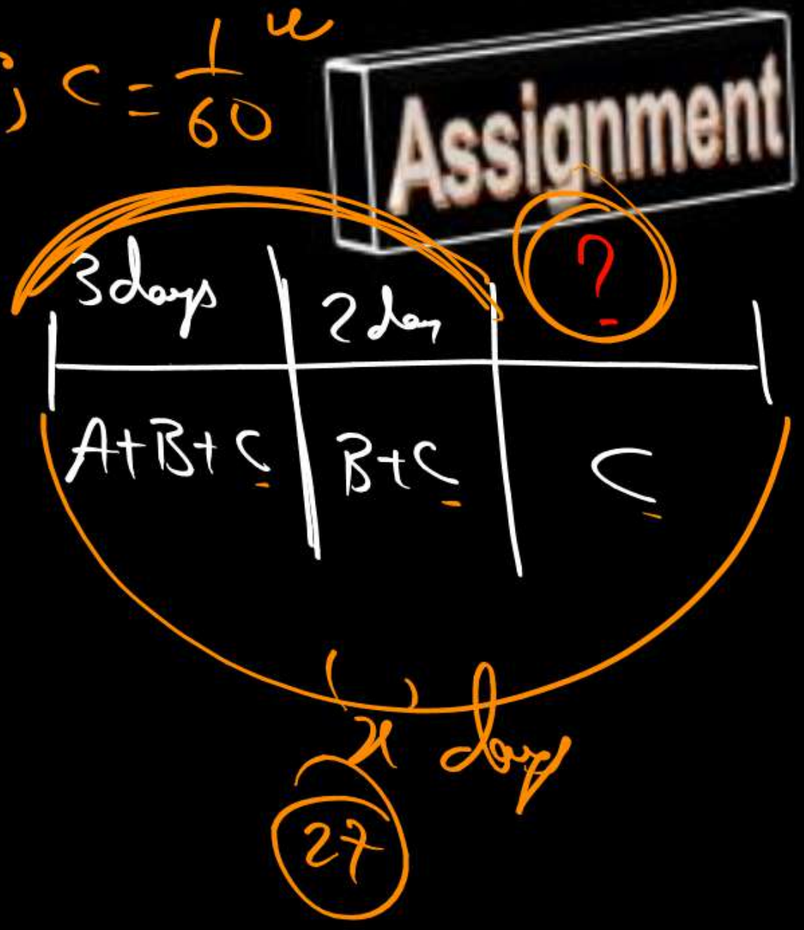
$27 - 5$

22

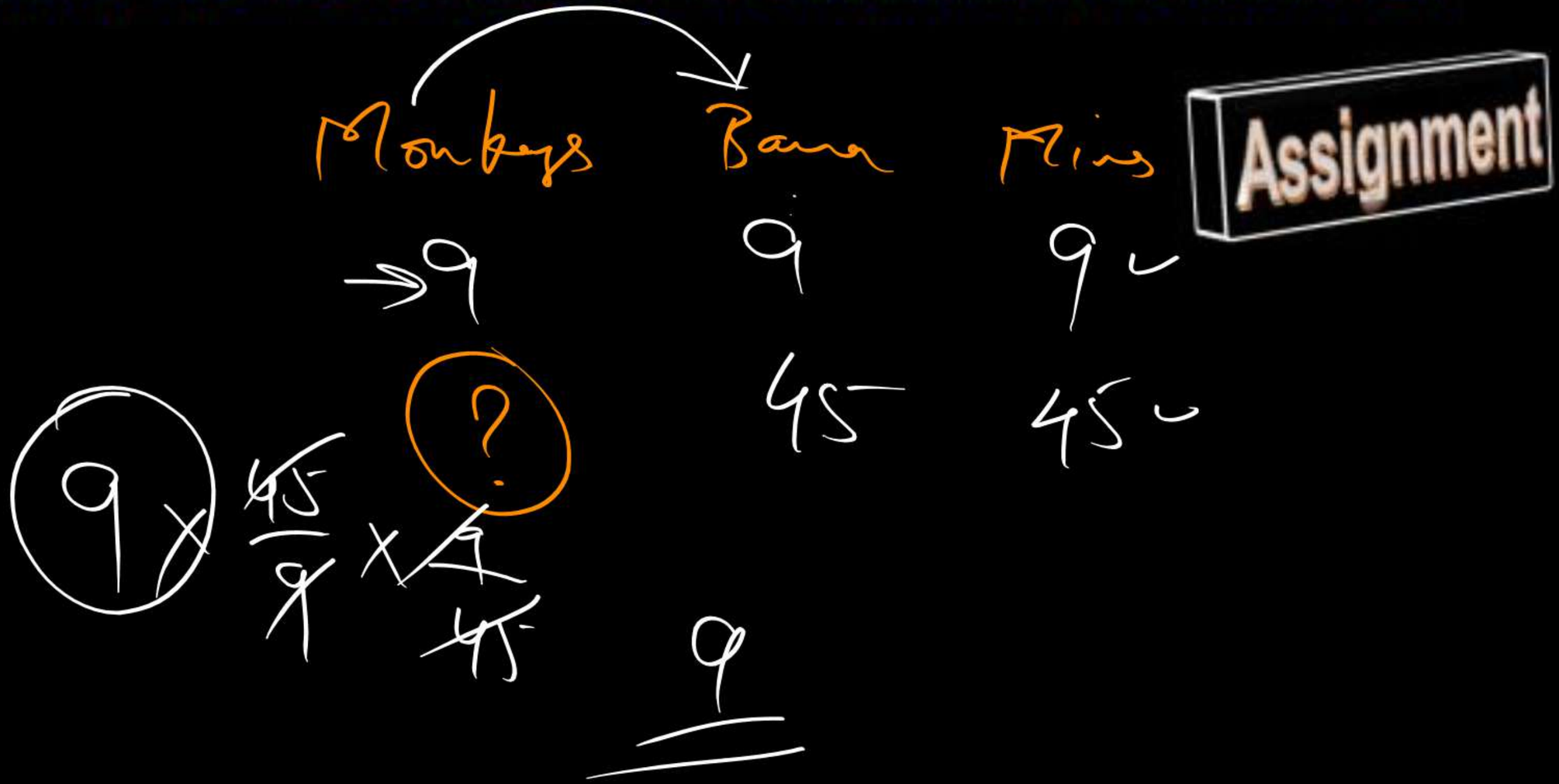
$\frac{x}{60} + \frac{5}{20} + \frac{3}{10} = 1$

$x + 15 + 18 = 60$

$x = 27$



Q. If 9 MONKEYS EAT 9 BANANAS IN 9 MINUTES, THEN HOW MANY MONKEYS WILL EAT 45 BANANAS IN 45 MINUTES?



Assignment

CHAIN RULE

↑ (1) $\times \frac{2}{1}$

↓ (1) $\times \frac{1}{2}$

$42\% \text{ of } x = 68$

$x = 68 \times \frac{100}{42}$

%	No.
42%	68
96%	?

$96\% \text{ of } x = \frac{96}{100} \times 68 \times \frac{100}{42}$

$68 \times \frac{96}{42}$

Q. 12 men can do a work in 15 days working 8 hours a day. In how many days can 9 men do the same work, working 10 hours a day?

Men	Days	Hrs/day
12	15	8
9	?	10

$$15 \times \frac{12}{9} \times \frac{8}{10}$$

$$= 4 \times 4 = 16 \text{ days}$$

Q. If 12 tailors can stitch 15 shirts working 8 hours daily in 56 days, then 15 tailors can stitch 18 shirts working 6 hours daily in how many days?

Tailors	Shirts	hrs/day	Days
12	15	8	56
15	18	6	?

$$56 \times \frac{8}{6} \times \frac{18}{15} \times \frac{12}{15}$$

$$= \frac{56 \times 8 \times 4}{25} = \frac{56 \times 32}{25} = 71.68$$

Q. A Clock which gains 10 minutes in every one hour was set correct at 6 am. If that clock represents 1 pm the same day, what must be the correct time?

6 am + 6 hrs

12 pm

$60 \times \frac{7}{70} = 6$ hrs

C.W

60 min

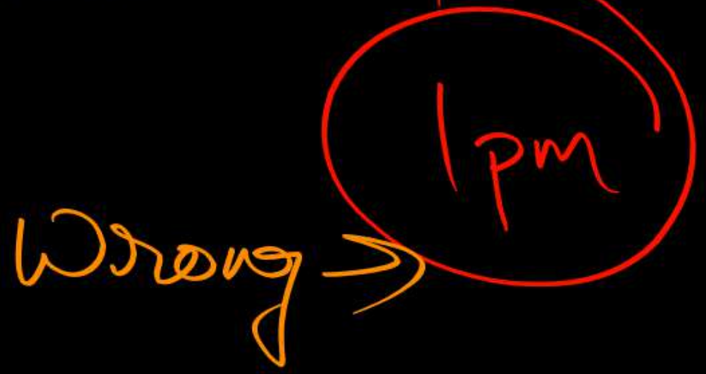
?

W.W

70 min

7 hrs

Q. A Clock which gains 10 minutes in every one hour was set correct at 6 am. If the correct time is 12 pm the same day, what would be the time shown by that clock?



Wrong

Q. A hostel with 600 students had sufficient food for 210 days. After 30 days, 240 students left the hostel. Now the remaining food will last for how many days?

Students	Days
600	210
600	180 (210-30)
(600-240) 360	?

$180 \times \frac{600}{360} = 300$

300

Q. A contractor under takes to make a road in 40 days and employs 25 men. After 24 days, he finds that only one-third of the road is made. How many extra men should he employ so that he is able to complete the work 4 days earlier?

40 − 4 = 36 days

A. 75

B. 100

C. 50

D. None of these

$25 \times \frac{24}{12} \times \frac{2}{3} \times \frac{3}{1}$

$= 100$ Men

Men	Days	Work
25	24	1/3
?	12	2/3

75 Men

Efficiency

6000

P : Q = 6 : 7 (Efficiency)
= 7 : 6 (days)

A : B = 10 : 20
= 1 : 2
A = 10 days B = 20 days

$A : B = \frac{1}{10} : \frac{1}{20}$

$A : B = 2 : 1$

$\frac{1}{x}$ $\frac{1}{y}$ $\frac{1}{z}$

x : y : z (Wages per day)

C days

A : B = 9 : 1

Efficiency = 1 : 9

$A = \frac{2}{3} \times 6000$

$= 4000$

$B = \frac{1}{3} \times 6000$

$= 2000$

A : B : C = 1 : 2 : 3 (days)

= 6 : 3 : 2 (Efficiency)

Q. A can do a work in 60 days whereas B in 20 days. If they together took a contract of ₹24000, then what would be the share of A?

A's share

$= \frac{1}{4} \times 24{,}000 = 6{,}000$

$A : B = 60 : 20 \Rightarrow$ Days

$= 3 : 1$

Efficiency $A : B = 1 : 3$

$= 6K$

6000

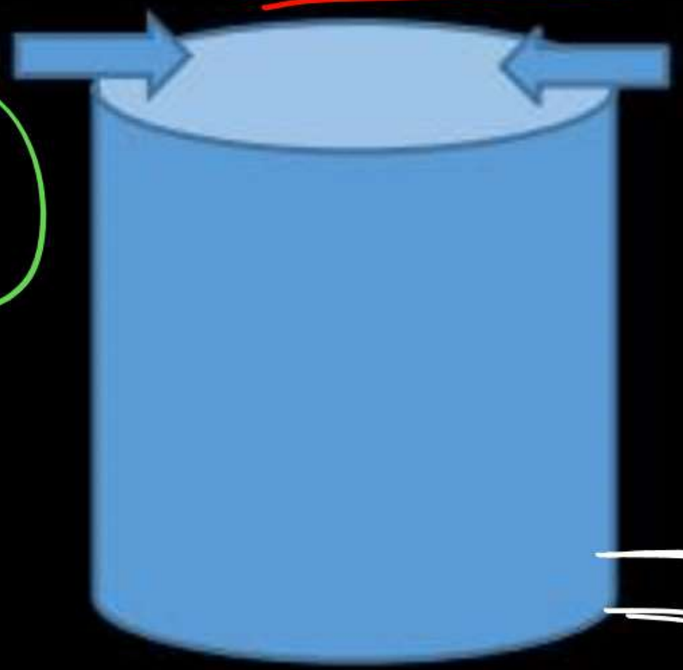
PIPES & CISTERN

→ Tank

Empty (−)
filling (+)

TAP 'B'
5 hrs
$\frac{1}{5}$

TAP 'A'
6 hrs
$\frac{1}{6}$



C
4 hrs
$-\frac{1}{4}$

$A\&B = \frac{1}{6} + \frac{1}{5} = \frac{11}{30}$

$\frac{30}{11} = 2\frac{8}{11}$ hrs

$A\&B\&C = \frac{1}{6} + \frac{1}{5} - \frac{1}{4}$

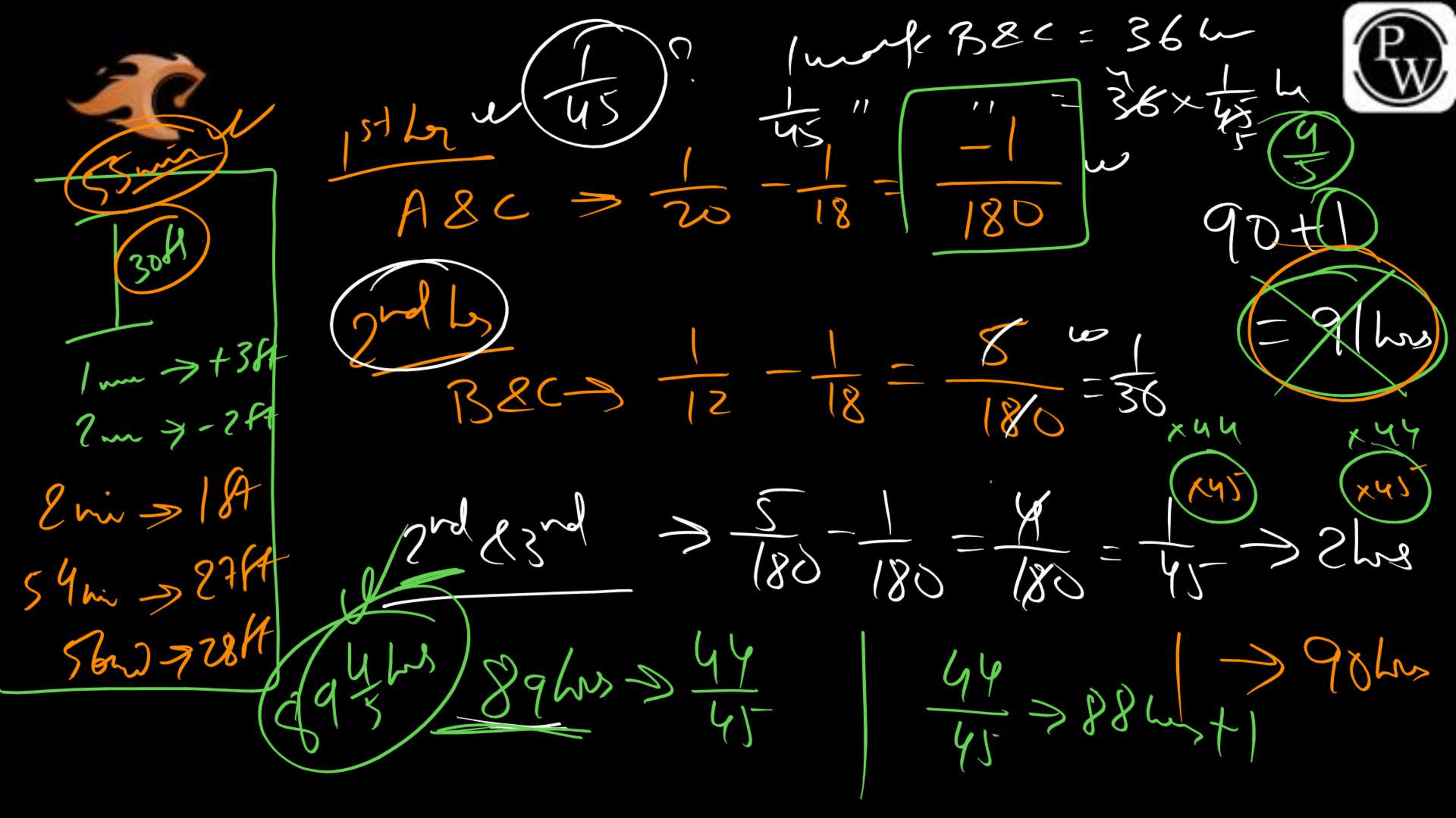
$= \frac{10+12-15}{60} = \frac{7}{60}$

$\frac{60}{7} = 8\frac{4}{7}$ hrs

Q. A tank consist of three taps A, B and C. Tap A and tap B can fill the tank in 20hrs and 12 hrs respectively, whereas tap C can empty the tank in 18hrs. C was kept open whereas A and B are opened in alternate hours i.e. 1st hr A, 2nd hr B, 3rd hr A.....so on. In how many hours the tank would be filled?

$A = \frac{1}{20}$ $B = \frac{1}{12}$

$C = -\frac{1}{18}$


1st Lay
A&C ⇒ 1/20 − 1/18 = −1/180
1/45 "
1 work B&C = 36 hrs
36 × 1/45 hrs
4/5
90+1
= 91 hrs
2nd Lay
B&C ⇒ 1/12 − 1/18 = 6/180 = 1/30
2nd & 3rd ⇒ 5/180 − 1/180 = 4/180 = 1/45 ⇒ 2 hrs
×44
×44
(45)
(45)
89 4/5 hrs
89 hrs ⇒ 44/45
44/45 ⇒ 88 hrs + 1 ⇒ 90 hrs
5 min
30 ft
1 min ⇒ +3 ft
2 min ⇒ −2 ft
2 min ⇒ 18 ft
54 min ⇒ 27 ft
56 min ⇒ 28 ft

Q. Two pipes A and B can fill a tank in 8 minutes and 12 minutes respectively. Both the pipes are opened together and after 3 minutes, pipe A is turned off. What is the total time required to fill the tank?

Assignment

A. 3 minutes

B. 7.5 minutes

C. 4.5 minutes

D. 10 minutes

Q. Pipes A and B can fill a tank in 4 hours and 8 hours respectively. Pipe C can empty it in 16 hours. If all the three pipes are opened together, then how long will it take to fill the tank?

A. 4.5 hours

B. 2 hours

C. 6 hours

D. 3.2 hours

Q. A is twice as good a workman as B and together, they finish a piece of work in 18 days. In how many days will A alone finish the work?

A. 28 days

B. 30 days

C. 27 days

D. 29 days

Q. A can do ¾ th of a work in 12 days. In how many days can he finish $^{1}/_{8}$ th of work?

Assignment

Q. A tank can be filled by 20 buckets each of capacity 13.5 litres. If the capacity of each bucket be 9 litres, how many buckets will fill the same tank?

Assignment

A. 30

B. 25

C. 20

D. 15

Thank You !