Pipes & Cisterns

Pipes and Cisterns

OnlineStudy4u

Placement for All.. All for Placement

This Video Completely covers the problems on "Pipes and Cisterns" which is more than sufficient for all kind of placement Exams eg: TCS/WIPRO/AMCAT/ELITMUS/CoCubes and all other placement Exams.

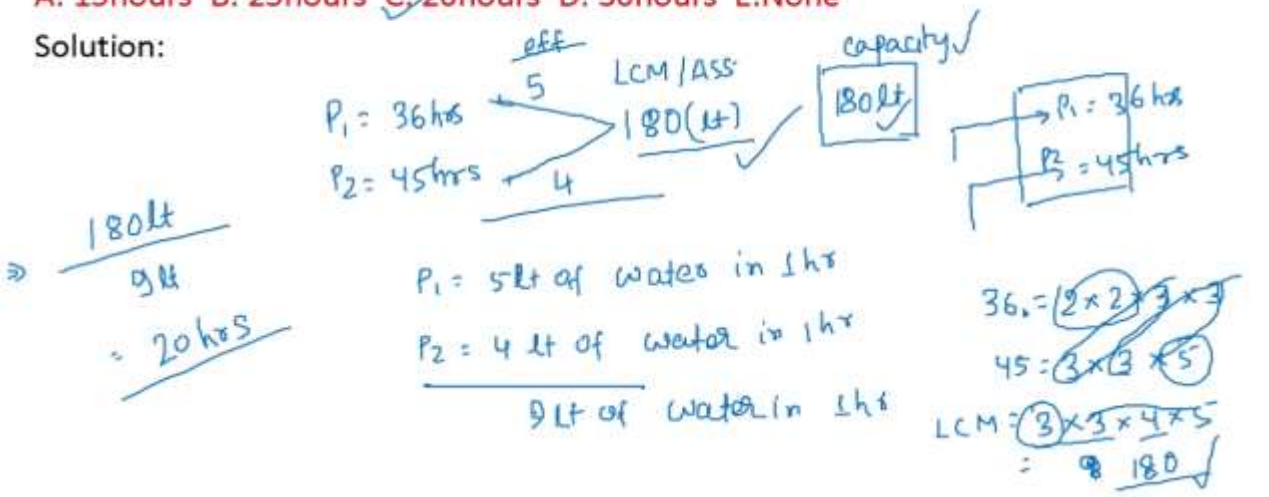
Pipes and Cisterns by : Pratik Shrivastava(10 years of industry experience and best Aptitude trainer)

Pipes and Cisterns

Q1. Two pipes P1 & P2 can fill a tank in 36 hours and 45 hours respectively. If both the pipes are open simultaneously. How much time will be taken to fill the tank?

A. 15hours B. 25hours C. 20hours D. 30hours E.None

Solution:

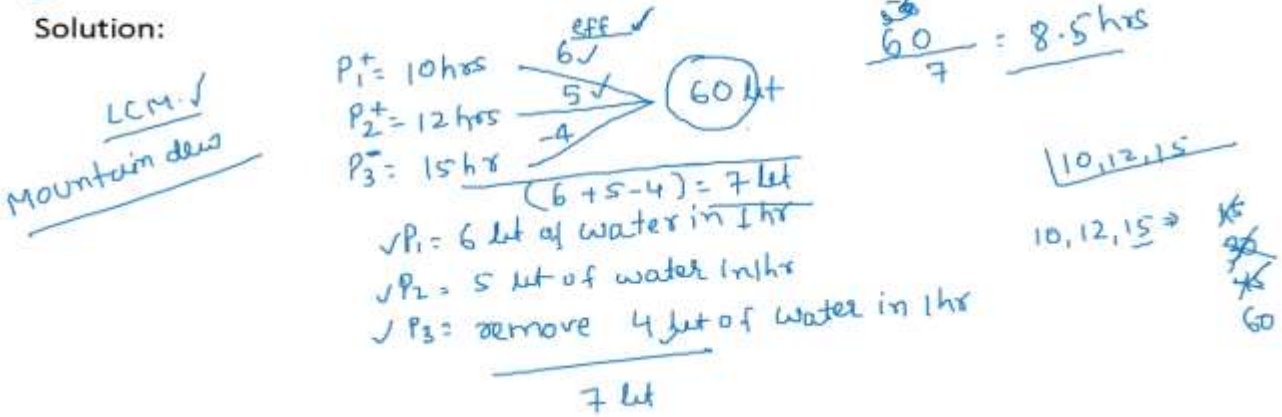


Pipes and Cisterns

Q2. Pipe P1 and P2 can fill a tank in 10 hour and 12 hour respectively but pipe P3 can empty the same tank in 15 hour, In how much time it will take to fill the tank when the three pipes are opened together?

A. 8.5hours B. 10hours C. 12hours D. 15hours E.None

Solution:

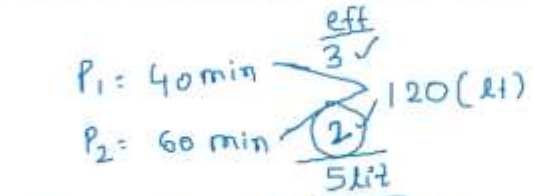


Pipes and Cisterns

Q3. Two pipe p1 and p2 can fill a tank in 40 minutes and 60 minutes respectively, both the taps are opened and after 10 minutes P1 was shut. In how much more time would the tank would be filled?

A. 35minutes B. 45minutes C. 40minutes D. 50minutes E.None

Solution:



$P_1 \Rightarrow 3$ lit → 1 min

$P_2 \Rightarrow 2$ lit → 1 min

10 min P_1 & P_2 were open

10 min × 5 = 50 lit

Remaining : 120 − 50 = 70 lit

$\Rightarrow \frac{70 \text{ lit}}{2}$

35 min

Pipes and Cisterns

Q4. A tank can be filled by two pipes A and B in 60 minutes and 40 minutes respectively. How many minutes will it take to fill the tank from empty state if B is used for the first half time and then A and B fill it together for the other half ?

A. 15minutes B. 20minutes C. 25minutes D. 30minutes E.None

Very good ✓

Solution:

Total time = T

B → T/2 ✓ A+B → T/2 ✓

(B)

$\Rightarrow 3 \text{ lit} \times \frac{T}{2} + 5 \text{ lit} \times \frac{T}{2} = 120 \text{ lit}$

$\Rightarrow \frac{3T}{2} + \frac{5T}{2} = 120 \Rightarrow \frac{8T}{2} = 120 \Rightarrow 8T = 240$ 30

T = 30min

Pipes and Cisterns

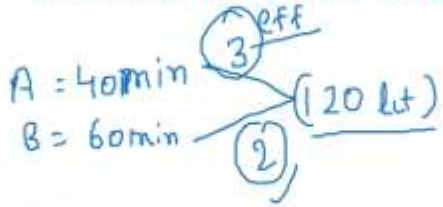
Q5. Two pipes A & B fill an empty tank in 40 minutes and 60 minutes respectively, If both pipes are open simultaneously after how much time should A be closed so that tank is filled in 36 minutes?

Time & Work

V.V.I ✓

A) 36 min B) 20 min C) 25 min D) 16 min E) None of these.

Solution:



In 36 min,

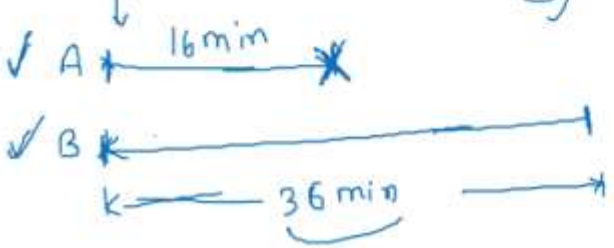
B = 36 × 2 = 72 lit

Remaining = 120 − 72 = 48 lit

48 lit

$\frac{48 \text{ lit}}{3}$

= 16min

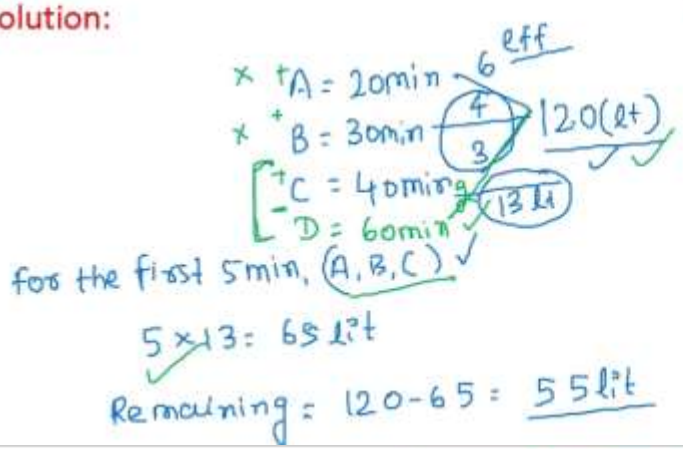


Pipes and Cisterns

Q6 Three taps A,B and C can fill a tank in 20,30 and 40 minutes respectively. All the taps are opened simultaneously and after 5 minutes tap A was closed and then after 6 minutes tab B was closed .At the moment a leak developed which can empty the full tank in 60 minutes. What is the total time taken for the completely full?

A) 44 minutes B) 25 minutes C) 35 minutes D) 24 minutes E) None of these

Solution:



for the first 5min, (A, B, C)

5 × 13 = 65 lit

Remaining = 120 − 65 = 55 lit

6 min (B + C) will be open

(4 + 3) × 6 = 7 × 6 = 42 lit

Remaining: 55 − 42 = 13 lit

$\frac{13 \text{ lit}}{(3-2)} \Rightarrow \frac{13}{1} = 13 \text{ min}$

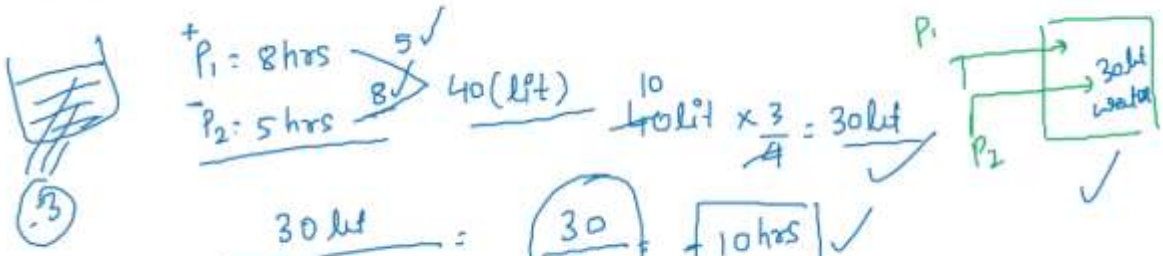
Total time: 5 + 6 + 13 = 24 min

Pipes and Cisterns

Q7. A cisterns has two pipes. One can fill it with water in 8hours and other can empty it in 5hours. In how many hours will the cisterns be emptied if both the pipes are opened together when ¾ of the cistern is already filled with water?

A) 13 1/3 hours B) 10 hours C) 6 hours D) 3 1/3 hours. E) None of these

Solution:



$\frac{30 \text{ lit}}{5-8} = \frac{30}{-3} = 10 \text{ hrs}$

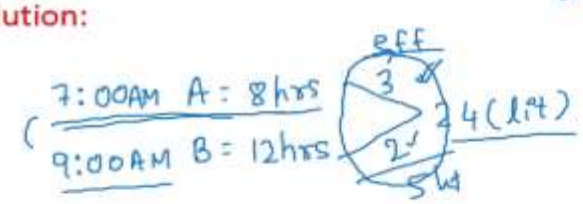
water will be removed

Pipes and Cisterns

Q8 Pipe A can fill the tank in 8hours and Pipe B can fill it in 12hours.If Pipe A is opened at 7:00am and Pipe B is opened at 9:00am, then at what time will the tank will be full?

A) 12:00PM B) 12:30PM C) 11:48PM D) 12:36PM E) None of these

Solution:



Pipe A in 2 hours ⇒ 3 × 2 = 6 lit

Remaining: 24 − 6 = 18 lit (A + B)

9:00AM + 3:36 = 12:36PM

$\Rightarrow \frac{18 \text{ Lit}}{5 \text{ Lit}}$

⇒ 3.6 hrs

3 + 0.6

3 + 0.6 × 60

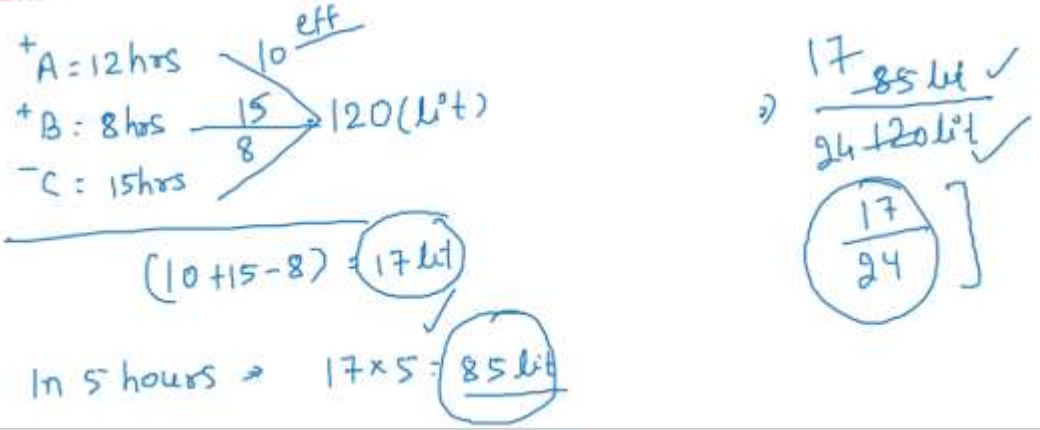
3 hrs 36 min

Pipes and Cisterns

Q9. Pipe A can fill the tank in 12hours and Pipe B can fill the tank in 8hours. A third Pipe C empties tank in 15hours. If all pipes are opened together then after 5hours what portion of the tank will be filled?

A) 17/24 B) 24/17 C) 17/120 D) 1/3 E) None of these

Solution:



Pipes and Cisterns

Q10. Having the same capacity 9taps fill up a water tank in 20minutes. How many taps of the same capacity are required to fill up the same water tank in 15 minutes?

A) 10 B) 12 C) 15 D) 18 E) None of these

Solution:

9 taps, 20 min | x taps, 15 min

$$\frac{9 \times 20}{x} = \frac{x \times 15}{x}$$

$$x = \frac{9 \times 20}{15} = 12 \text{ taps}$$

$$\frac{M_1 D_1}{W_1} = \frac{M_2 D_2}{W_1}$$

$$\frac{T_1 \times t_1}{C_1} = \frac{T_2 \times t_2}{C_2}$$