

## PIPES AND CISTERN

1. A pipe Can fill a tank in 10 hours. The other pipe can fill a tank in 15 hours. How much time will they take to fill that tank together.
2. A pipe can fill a tank in 10 hours. The other pipe can empty a tank. Both are opened together. In how much time will tank be filled?
3. A pipe can fill a tank in 20 min and another pipe can fill in 30 min. After returning, a man noticed that The tank did not filled due to a leakage. If he repaired That leakage than the tank was filled in 3 minutes. In how much time will that leakage be emptied that tank?
4. Two pipes can fill a tank in 1 37 2 minutes and 45 minutes respectively. Both are opened together. After working at it together for some time B is closed then the tank is filled in half an hour. After what time will the pipe B have turned off.
5. A tank has 8 pipes. Out of which some are inlets and some are outlets. Inlet pipe can fill a tank in 8 hours and an outlet pipe

can empty the tank in 6 hours. If all pipes are opened together then the tank get filled in 8 hours. Find the number of inlets and outlets pipe.

6. Out of 7 pipes. Some are inlets and some are outlets. An inlet pipe can fill a tank in 5 hours and one outlet pipe can empty tank in 4 hours. If all the pipes are opened together then the tank get filled in 20 hours. Find the number of inlet and outlets pipe.
7. Three pipes which has radius  $\frac{1}{2}$ , 1,  $\frac{3}{2}$  can respectively are connected to a tank. Speed of water flowing in that pipes 33 l/min. If all three pipes fill that tank in 18 min then how long will thickest pipe take to fill the tank alone.
8. Three pipes which has radius 1,  $\frac{3}{2}$ , 2 can respectively are connected to a tank. speed of water flowing in that pipes is 3, 2, 1 l/min respectively If the thickest pipe can fill the tank in 46 min. Then how much time will they take to fill the tank together.
9. Two taps A and B can fill a tank in 12 min and 16 min respectively. Both tapes are opened together but due to some problem they work  $\frac{7}{8}$  and  $\frac{5}{6}$  of their efficiency, after some

time the problem was removed and now the tank will fill in 3 min. Then after how much time the problem is removed.

10. Two taps A and B can fill a tank in 30 min and 36 min respectively. Both tapes are opened together but due to some problem they work  $\frac{5}{6}$  and  $\frac{9}{10}$  of their efficiency, after some time the problem was removed and now the tank will fill in 16.5 min. Then after how much time the problem is removed.
11. Two pipes can separately fill a tank in 20 hours and 30 hours respectively. Both the pipes are opened to fill the tank but when the tank is  $\frac{1}{3}$  full a leak develops in the tank through which  $\frac{1}{3}$  of the water supplied by both the pipes leak out .What is the total time taken to fill the tank?
12. Four pipes of equal efficiency are attached with a tank in interval of gap. Each of pipe can fill a tank in 16 hours. First is at its base and last at  $\frac{3}{4}$ <sup>th</sup> of its height. In how many hours total filled tank will be empty.
13. A leakage can empty a tank in 6hours. An inlet is open with it, which admits 6liters/min and now the tank is empty in 8hours. Find the capacity of tank.

14. Two pipes can separately fill a tank in 20 hours and 30 hours respectively. Both the pipes are opened to fill the tank but when the tank is  $\frac{1}{3}$  full a leak develops in the tank through which  $\frac{1}{3}$  of the water supplied by both the pipes leak out. What is the total time taken to fill the tank?
15. A cistern can be filled separately by two pipes P and Q in 45 minutes and 35 minutes respectively. A tap R at the bottom can empty the full cistern in 30 minutes. If the tap R is opened 7 minutes after the two pipes P and Q are opened, then after what time from the opening of tap R the cistern becomes full.
16. A Tank is filled with the mixture of Milk and Water in the ratio of 3:2 up to  $\frac{2}{5}$  of its capacity. The tank has two inlet pipes i.e., Milk and Water inlets. Milk and Water pipe can fill an empty tank in 12 and 18 hours respectively. Now both pipes are opened simultaneously and closed after the Tank is completely filled, then what is the ratio of Milk and Water in the full Tank if it can accommodate 250Litre?
17. An Inlet pipe can fill a tank in 5 hours and an Outlet pipe can empty  $\frac{4}{7}$  of the same Tank in 4 hours. In the first hour only Inlet pipe is opened and in the second hour, only outlet pipe is

opened. They have opened alternately every hour until the Tank is filled. Then in how many hours does the Tank gets filled?

18. A Tank is already filled up to  $X\%$  of its capacity. An Inlet pipe can fill Full Tank in 30 minutes and an Outlet pipe can empty Full Tank in 20 Minutes. Now both pipes are opened then the Tank is emptied in 24 Minutes. Then initially up to what % of its capacity is Tank filled?
19. Pipe A can fill a Tank in 18 Hours, Pipe B can empty a Tank in 12 Hours, pipe C can fill Tank in 6 Hours. The Tank is already filled up to  $\frac{1}{6}$  of its capacity. Now Pipe A is opened in the First Hour alone, Pipe B is opened in the Second Hour alone and Pipe C is opened in the Third Hour alone. This cycle is repeated until the Tank gets filled. Then in How many Hours does the rest of Tank gets filled?
20. Pipe A, B and can fill a Full Tank in 24,36 and 48 Minutes respectively. All three Pipes are Opened simultaneously in a Tank which is already filled up to  $\frac{1}{6}$  of its capacity. A and B are opened for only First 6 Minutes and closed thereafter. Then C alone filled remaining Tank. Then in total how many Minutes does C filled the Tank?

21. Two Pipes A and B together can fill a Tank in 'X' minutes. If 'A' is Inlet Pipe can Fill the Tank alone in 40 minutes less than 'X' minutes and 'B' is Outlet pipe can empty the Tank alone in 30 minutes less than 'X' minutes. Then together they can fill the empty Tank in how many minutes?
22. A Cistern has an inlet pipe and outlet pipe. The inlet pipe fills the cistern completely in 1 hour 20 minutes when the outlet pipe is plugged. The outlet pipe empties the tank completely in 6 hours when the inlet pipe is plugged. If there is a leakage also which is capable of draining out the water from the tank at half of the rate of the outlet pipe, then what is the time taken to fill the empty tank when both the pipes are opened?
23. A Cistern has an inlet pipe and outlet pipe. The inlet pipe fills the cistern completely in 1 hour 20 minutes when the outlet pipe is plugged. The outlet pipe empties the tank completely in 4 hours when the inlet pipe is plugged. If both pipes are opened simultaneously at a time when the tank was one-third filled, when will the tank fill thereafter?
24. Two pipes can fill a tank in 15 and 20 hours respectively. The pipes are opened simultaneously and it is found that due to the

leakage in the bottom,  $17\frac{1}{7}$  hours extra are taken extra to fill the tank. If the tank is full, in what approximate time would the leak empty it?

25. In what time would a cistern be filled by three pipes whose diameters are 1cm, 2 cm and 3 cm running together, when the largest pipe alone can fill the tank in 21 minutes? The amount of water flowing through the pipe is directly proportional to the square of its diameter.
26. Three pipes A, B and C is attached to a cistern. A can fill it in 20 minutes and B can fill it in 30 minutes. C is a waste pipe. After opening both the pipes A and B, Riya leaves the cistern to fill and returns when the cistern is supposed to be filled. But she found that waste pipe C had been left open, she closes it and now the cistern takes 5 minutes more to fill. In how much time the pipe C can empty the full cistern?
27. A tank is filled by three pipes with uniform flow. The first two pipes operating simultaneously fill the tank in the same time during which the tank is filled by the third pipe alone. The second pipe fills the tank 5 hours faster than the first pipe and 4 hours slower than the third pipe. Time required by the first pipe to fill the tank is.

28. Two pipes can fill a tank in 25 and 30 minutes respectively and a waste pipe can empty 3 gallons per minute. All the three pipes working together can fill the tank in 15 minutes. The capacity of the tank is.
29. A large tanker 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 tanker from empty state if B is used for half the time and A and B fill it together for the other half?
30. A leak in the bottom of a tank can empty the full tank in 6 hours. An inlet pipe fills water at the rate of 4 liters a minute. When the tank is full, the inlet is opened and due to the leak, the tank is empty in 24 hours. How many liters does the tank hold?
31. 13 buckets of water fill a tank when the capacity of each bucket is 51 litres. How many buckets will be needed to fill the same tank, if the capacity of each bucket is 17 litres?
32. Two pipes A and B attached to a swimming pool can fill the pool in 20 minutes and 30 minutes respectively working alone. Both were opened together but due to malfunctioning of motor of pipe A, it had to be shut down after two minutes but B



continued to work till the swimming pool was filled completely.  
Find the total time taken to fill the pool.

33. Three pipes A, B and C were opened to fill a tank. Working alone, A, B and C require 10, 15 and 20 hours respectively. A was opened at 7 AM, B at 8 AM and C at 9 AM. At what time the tank would be completely filled, given that pipe C can only work for 3 hours at a stretch, and needs 1 hour standing time to work again.
34. Three pipes A, B and C is attached to a cistern. A can fill it in 20 min and B can fill it in 30 min. C is a waste pipe. After opening both the pipes A and B, Riya leaves the cistern to fill and returns when the cistern is supposed to be filled. But she found that waste C had been left open, she closes it and now the cistern takes 5 more minutes to fill. In how much time the pipe C can empty the full cistern.
35. A swimming pool can be filled by a cold pipe in 15 minutes and by a hot pipe in 10 minutes. Aman opened both the tap and leaves to fill and returns at the time when the pool completely filled with water. After some time he observed that a waste pipe is opened at the bottom, he now closes it. Now the pool will

take more 5 minutes to fill the tank, how much time that leakage can empty the pool.

36. A and B are two pipes can fill and empty a tank in 6hr and 8hrs respectively. They work together for alternate hours. Find the time taken by them to fill the total tank.