

- 1) A, B and C can complete a piece of work in 15, 12, 10 days respectively. A and B started the work together and left after 4 days. If the remaining work can be done by C, then in how many days the total work get completed?
 - a. 12 days
 - b. 10 days
 - c. 6 days
 - d. 8 days
- 2) A does half as much work as B in three-fourth of the time. If together they take 18 days to complete a work, how much time shall B take to do it ?
 - a. 30 days
 - b. 35 days
 - c. 40 days
 - d. None of these
- 3) A and B working separately can do a piece of work in 9 and 12 days respectively. If they work for a day alternately. If A begins first, in how many days the work will be completed ?
 - a. $10\frac{1}{2}$ days
 - b. $10\frac{1}{4}$ days
 - c. $10\frac{2}{3}$ days
 - d. $10\frac{1}{3}$ days
- 4) A, B and C together earn Rs.150 per day while A and C together earn Rs.94 and B and C together earn Rs.76. The daily earning of C is :
 - a. Rs.75
 - b. Rs.56
 - c. Rs.34
 - d. Rs.20
- 5) A, B and C contract a work for Rs.550. Together A and B are to do $\frac{7}{11}$ of the work. The share of C should be :
 - a. Rs.183 $\frac{1}{3}$
 - b. Rs.200
 - c. Rs.300
 - d. Rs.400
- 6) Two men undertake to do a piece of work for Rs.400. One alone can do it in 6 days, the other in 8 days. With the help of a boy, they finish it in 3 days. The boy's share is
 - a. Rs.40
 - b. Rs.50
 - c. Rs.60
 - d. Rs.80
- 7) A is thrice as good a work man as B and takes 10 days less to do a piece of work than B takes. B can do the work in :
 - a. 12 days
 - b. 15 days
 - c. 20 days
 - d. 30 days
- 8) A can complete a job in 9 days B in 10 days and C in 15 days. B and C start the work and are forced to leave after 2 days. The time taken to complete the remaining work is :
 - a. 6 days
 - b. 9 days

- c. 10 days
 - d. 13 days
- 9) A completes a work in 6 days, B works $1\frac{1}{2}$ times as fast as A. How many days it will take for A and B together to complete the work?
- a. $4\frac{7}{12}$
 - b. $3\frac{5}{12}$
 - c. $4\frac{4}{5}$
 - d. None of these
- 10) Twelve men can complete a work in 8 days. Three days after they started the work, 3 more men joined them. In how many days will all of them together complete the remaining work ?
- a. 2
 - b. 4
 - c. 5
 - d. 6
- 11) A and B can complete a work in 10 days and 15 days respectively. B starts the work and after 5 days A also joins him. In all, the work would be completed in :
- a. 7 days
 - b. 9 days
 - c. 11days
 - d. None of these
- 12) A can do a piece of work in 80 days. He works at it for 10 days and then B alone finishes the work in 42 days. The two together could complete the work in :
- a. 24 days
 - b. 25 days
 - c. 30 days
 - d. 35 days
- 13) Two pipes can fill a tank in 10 hrs. and 12 hrs. respectively while a third pipe empties the full tank in 20 hrs. If all the three pipes operate together , in how much time the tank will be filled ?
- a) 6 hrs.
 - b) 8 hrs.
 - c) 7.5 hrs.
 - d) 8.5 hrs.
- 14) A cistern can be filled in 9 hrs. but it takes 10 hours, due to a leak in its lower part. If the cistern is full, then the time that the leak will take to empty it, is :
- a) 60 min.
 - b) 70 min.
 - c) 80 min.
 - d) 90 min
- 15) To fill a cistern, pipes P, Q & R take 20, 15 & 12 minutes respectively. The time in minutes that the three pipes together will take to fill the cistern is :
- a) 5 min.
 - b) 10 min.
 - c) 12 min.
 - d) 15.66 min

- 16) Two pipes P and Q can fill a cistern in 12 minutes and 16 minutes respectively. Simultaneously both the pipes are opened together, then after how much time Q should be closed so that the tank is full in 9 min ?
 a) 3.5 min.
 b) 4 min.
 c) 4.5 min.
 d) 4.75 min.
- 17) A tap can fill a tank in 32 min. and another can empty it in 16 min. If the tank is already half full and both the tanks are opened together, the tank will be
 a) filled in 4 min.
 b) emptied in 18 min.
 c) filled in 12 min.
 d) emptied in 16 min.
- 18) A leak in the lower portion of a tank can empty the full tank in 9 hrs. An inlet pipe fills water at the rate of 10 lit. a minute. When the tank is full, the inlet is opened and due to leak, the tank is empty in 16 hrs. How many litres does the cistern hold ?
 a) 17,580
 b) 17,960
 c) 18,290
 d) 12,342
- 19) Two pipes P and Q can fill a cistern in 12 min. and 15 min. respectively but a third pipe 'R' can empty the full tank in 6 min. P and Q are kept open for 5 min. in the beginning and then 'R' is also opened. In what time is the cistern emptied ?
 a) 30 min.
 b) 33 min.
 c) 37.5 min.
 d) 45 min.
- 20) Two pipes X and Y fill a tank in 15 hrs. and 20 hrs. respectively, while a third pipe 'Z' can empty the full tank in 25 hrs. All the three pipes are opened in the beginning. After 10 hrs. Z is closed. In how much time, will the tank be full ?
 a) 12 hrs.
 b) 13 hrs.
 c) 16 hrs.
 d) 18 hrs.

Solutions:

- 1) Assume total work = LCM (15,12,10) = 60
 The capacities of A, B, C are 4, 5, 6 respectively. (Capacity = Total work/ Days)
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|-------|--------------|
| DAYS↓ | TOTALWORK=60 |
| | Capacities↓ |
| A=15 | 4 |

$$B=12$$

$$5$$

$$C=106$$

A and B per day work = $4 + 5 = 9$.

Work completed in 4 days = $4 \times 9 = 36$.

Remaining work = $60 - 36 = 24$

This work has to be done by C alone.

We know that C's efficiency is 6 units per day.

So he can complete the remaining work in $24/6$ days = 4 days.

Total work can be completed in $4+4=8$ days.

- 2) Let us assume that B did 4 units in 4 days.

Then A do 2 units in 3 days.

B's capacity = $\text{Work/Days} = 4/4 = 1$

A's capacity = $\text{Work/Days} = 2/3$

Total work = $(1+2/3) \times 18 = 5/3 \times 18 = 30$

Days taken by B to complete the work = $\text{Work/Capacity} = 30/1 = 30$ days.

- 3) (A + B)'s 2 day's work = $(1/9 + 1/12) = 7/36$

Evidently, the work done by A and B during 5 pairs of days = $(5 \times 7/36) = 35/36$

Remaining work = $(1 - 35/36) = 1/36$

Now, on 11th day it is A's turn.

Now $1/9$ work is done by A in 1 day.

Days required for A to complete the remaining work = $\text{Remaining work/Capacity} = 1/36 / 1/9 = 9/36 = 1/4$.

So, total time taken = $10 \frac{1}{4}$ days.

- 4) B's daily earning = $\text{Rs.}(150 - 94) = \text{Rs.}56$

A's daily earning = $\text{Rs.}(150 - 76) = \text{Rs.}74$

C's daily earning = $\text{Rs.}(150 - (56 + 74)) = \text{Rs.}20$

- 5) Work to be done by C = $(1 - 7/11) = 4/11$

(A + B) : C = $7/11 : 4/11 = 7:4$

C's share = $\text{Rs.}(550 \times 4/7+4) = \text{Rs.} 200$

- 6) One man's 1 day's work = $1/6$

Another man's 1 day's work = $1/8$

Boy's 1 day's work = $1/3 - (1/6 + 1/8) = 1/24$

Ratio of their shares = $1/6 : 1/8 : 1/24 = 4:3:1$

Boy's share = $\text{Rs.} (400 \times 1/(4+3+1)) = \text{Rs.}50$

- 7) If the capacity of B is one, then Capacity of A is three.

we know that days are inversely proportional to capacities.

So days are in the ratio 1 : 3

Let us assume that the days are x and 3x respectively for A and B.

Days ↓

Capacities ↓

$$A=x \quad 3$$

$$B=3x \quad 1$$

$$\text{Given, } 3x-x=10$$

$$\Rightarrow x=5$$

$$\text{B's days to complete the work} = 3x = 3 \times 5 = 15$$

$$8) (B + C)\text{'s 2 days' work} = 2(1/10+1/15)=1/3$$

$$\text{Remaining work} = (1-1/3)=2/3$$

$$1/9 \text{ work is done by A in 1 day}$$

$$\text{Time required by A to complete } 2/3 \text{ work} = 2/3 / 1/9 = 6 \text{ days}$$

9)

$$\text{B's capacity } 1 \frac{1}{2} \text{ or } 3/2 \text{ times of A.}$$

$$\text{B will take } 2/3 \text{ time taken by A.}$$

$$\text{B's time} = 2/3 \times 6 = 4 \text{ days.}$$

$$\text{Days required for A and B together to complete the work} = 2xy/x+y = (2 \times 6 \times 4)/6+4 = 4 \frac{4}{5}$$

$$10) \text{ Let us assume 1 man's one day's work} = 1 \text{ unit.}$$

$$\text{Work completed by 12 men in 8 days} = 12 \times 1 \times 8 = 96 \text{ units.}$$

$$\text{Work completed by 12 men in 3 days} = 12 \times 1 \times 3 = 36 \text{ units.}$$

$$\text{Remaining work} = 96-36 = 60 \text{ units.}$$

$$\text{Total men after 3 days} = 12 + 3 = 15.$$

$$\text{Capacity of 15 men} = 15 \times 1 = 15 \text{ units.}$$

$$\text{Days required for 15 men to complete 60 units} = 60/15=4 \text{ days.}$$

$$11) \text{ B's 5 day's work} = 5 \times 1/15=1/3$$

$$\text{Remaining work} = (1-1/3)=2/3$$

$$\text{A and B combined work in 1 day} = (1/10+1/15) = 1/6$$

$$\text{Days required to complete } 2/3 \text{ work} = 2/3 / 1/6 = 2/3 \times 6/1 = 4 \text{ days}$$

$$\text{Hence the work was completed in 9 days.}$$

$$12) \text{ A's 10 day's work} = (10 \times 1/80)=1/8$$

$$\text{Remaining work} = (1-1/8)=7/8$$

$$7/8 \text{ work is done by A in 42 days}$$

$$\text{Days required by A to complete the whole work} = 42/7/8 = (42 \times 8/7) \text{ i.e. } 48 \text{ days}$$

$$(A + B)\text{'s 1 day's work} = (1/80+1/48)=8/240=1/30$$

$$\text{Hence A and B together can finish it in 30 days.}$$

$$13) \text{ Net part filled in 1 hour} = (1/10+1/12-1/20) = (6+5-3)/60=8/60=2/15$$

$$\text{The tank will be full in } 15/2 \text{ hrs.} = 7 \text{ hrs. } 30 \text{ min.}$$

$$14) \text{ Work done by the leak in 1 hr.}$$

$$= (1/9-1/10)=1/90$$

$$\text{Leak will be empty the full cistern in 90 min.}$$

$$15) \text{ Part filled by (P + Q + R) in 1 min.}$$

$$= (1/20+1/15+1/12)=12/60=1/5$$

$$\text{All the three pipes together will full the tank in 5 min.}$$

- 16) Let Q be closed after x min. Then part filled by (P+Q) in x min + part filled by P in (9 - x) min

$$x(1/12 + 1/16) + (9 - x)1/12 = 1$$

$$\Rightarrow 7x + 36 - 4x = 48$$

$$\Rightarrow x = 4.$$
 That means 'Q' must be closed after 4 minutes.
- 17) In this problem, rate of water pipe (waste) is more; the tank will be emptied when the pipes are opened.
 Work done in total emptying in 1 min.

$$= 1/16 - 1/32 = 1/32$$

 Now, full tank will be emptied by them in 32 minutes.
 Half full tank will be emptied in 16 minutes.
- 18) Work done by the inlet in 1 hr = $1/9 - 1/16 = 7/144$
 Work done by the inlet in 1 min. = $(7/144 \times 1/60) = 7/8,640$
 Volume of $7/8,640$ part = 10 litres.
 Whole volume = $10 \times 8,640/7 = 12,342$ litres.
- 19) Part filled in 5 min.

$$= 5(1/12 + 1/15) = (5 \times 9/60) = 3/4 = 45 \text{ min.}$$

 Part emptied in 1 min. when all the pipes are opened.

$$= 1/6 - (1/12 + 1/15)$$

$$= (1/6 - 3/20) = 1/60$$

 $1/60$ part is emptied in 1 min.
 $3/4$ part will be emptied in $(60 \times 3/4) = 45$ min.
- 20) Part filled in 10 hrs.

$$= 10[1/15 + 1/20 - 1/25] = 23/30$$

 Remaining part = $(1 - 23/30) = 7/30$
 $(x + y)$'s 1 hour work = $(1/15 + 1/20) = 7/60$
 $7/60 : 7/30 :: 1 : p$

$$\Rightarrow p = (7/30 \times 1 \times 60/7) = 2 \text{ hrs.}$$

 The tank will be full in $(10 + 2) \text{ hrs} = 12 \text{ hrs}$