

**Statement {Home Work}**

**Q1. A and B could do a piece of work in 12 days and 20 days respectively. Find the number of days taken by them to complete 2/3rd of the work together. (in days)**

- (a)10 (b)2 (c)5 (d)8 (e)12

**Q2. A work is completed by P and Q together in 30 days. When a third person R joined them, then the work is completed in 18 days. In how many days, the work is completed by R alone? (in days)**

- (a) 25 (b) 20 (c) 45 (d) 30 (e) 15

**Q3. The pipe A could fill a tank in 24 hours and the ratio of efficiency of A to B is 2:3. Find the total time taken by both of them together to fill half quantity of the tank completely. (in hours)**

- (a)12.8 (b)10.2 (c)12.4 (d)4.8 (e)9.6

**Q4. A tank is normally filled in 30 hours but due to a leak in it, it takes 6 hours more to be filled. If the tank is completely filled, then the leak will empty it in? (in hours)**

- (a) 60 (b) 150 (c) 90 (d) 120 (e) 180

**Q5.. P and Q could do a piece of work in 10 days and 12 days respectively. If P, Q and R could do that same work in 4 days, then find the number of days taken by P and R working together to finish the same work? (in days)**

- (a)6 (b)12 (c)8 (d)4 (e)16

**Q6... Meena is 75% less efficient than Hema. Veena and Hema working together can complete a task in 8 days and Veena is half efficient as Hema, then find in how many days Meena alone can complete the task with 250% of his original efficiency?**

- (a) 19.2 days (b) 21.1 days (c) 22.4 days (d) 24.5 days (e) 32.6 days

**Q7... Ram has two sons named Rohan and Karan. The ratio of age of ram and rohan is 5 : 2 and that of rohan and Karan is 8 : 5. Also, Rohan is 6 years elder than Karan. Find the ratio of their ages after 10 years.**

- (a) 23 : 10 : 4 (b) 25 : 16 : 9 (c) 25 : 13 : 10 (d) 50 : 26 : 19 (e) 25 : 16 : 10

**Q8... A bag contain 6 red balls, 3 green balls and 4 blue balls. Find the probability of selecting 3 balls such that 2 balls are of same colour ?**

- (a) 221/286 (b) 191/286 (c) 175/286 (d) 189/286 (e) 211/286

**Q9. Sanjay borrowed certain amount of money at simple interest at the rate of 5% p.a. for the first three years, 10% p.a. for the next five years and 12% p.a. for the period beyond 8 years. If the total interest paid by him at the end of 12 years is Rs. 6780, how much money did he borrow?**

- A. Rs. 6000 B. Rs. 5000 C. Rs. 4500 D. Rs. 5500 E. Rs. 3840

**Q10... The simple interest on a certain sum for 2 years at 8% per annum is Rs. 225 less than the compound interest on the same sum for 2 years at 10% per annum. The sum is:**

- (a) Rs. 3200 (b) Rs. 4200 (c) Rs. 4000 (d) Rs. 3600 (e) Rs. 4500

**Q11.. On selling 21 bottles at Rs. 1620, there is a profit equal to the cost price of 6 bottles. The cost price of a bottle is**

- (a) Rs. 45 (b) Rs. 50 (c) Rs. 55 (d) Rs. 60 (e) Rs. 108

**Q12...A man purchased a shirt and pant with a discount of 30% on its MP. He sold them at a price 60% more than the price at which he bought them . how much percent the new SP to its MP?**

- A) 5% B) 8% C) 12% D) 10% E) None

**Q13.... A man covers a part of the journey at 20 kmph and the balance at 70 kmph taking total of 8 hours to cover the distance of 400 km. How many hours has been driving at 20 kmph?**

- A) 2hrs 20min B) 2hrs 35min C) 3hrs 12min D) 4hrs 45min E) None

**Q14.A, B and C enter into a partnership in the ratio 7/2:4/3:6/5. After 4 months, A increases his share 50%. If the total profit at the end of one year be Rs.22680, then C's share in the profit is:**

- A) Rs3780 B) Rs3520 C) Rs2350 D) Rs2600 E) None

**Q15.A towel, when bleached, was found to have lost 20% of its length and 10% of its breadth. The percentage of decrease in area is:**

- A) 32% B) 28% C) 35% D) 40% E) None

**Q16. A certain sum 10M Invested at simple Interest becomes 130M in 30 years. If the same amount invested with same rate of Interest but at Compound Interest, it will become \_\_\_ after two years?**

- A.14.4 M B.19.6 M C.23.2 M D.16.9 M E.None of these

**Q17. When a person invests some money under simple interest then at the end of some years the amount become 9 times of the principal amd the numerical value of the rate of interest per annum is double of the time. At the end of 15 years, the amount will become how many times of the principal at the same rate of interest?**

- A. 6 times B. 8 times C. 9 times D. 7 times E. None of these

**Q18.. At 9: 00 PM Rajdhani express leaves Delhi for Patna at the rate of 96 km/hr.**

**At 11: 00 PM on the same day Shatabdi express leaves Patna for Delhi at the rate of 49 km/hr. At what time both the train will collide? (it is given that the distance between Delhi and Patna is 540 km and both the trains are running on the same track)**

- A. 01: 24 AM B. 02: 30 AM C. 00: 48 AM D. 01: 48 AM E. None of these

**Q19... Two trains leave station P at 5 : 30 pm and at 7 : 00 pm respectively. They travelled at 48 km/h and 60 km/h. How many Kilometres away will the two trains meet?**

- A. 240 km B. 280 km C. 320 km D. 360 km E. None of these

**Q20... .. Two friends Ram and Sham appear in an interview . There is 25% probability that Ram can be selected and 20% probability that Sham can be selected , then what is the probability that none of them get selected?**

- A.85% B. 40% C. 62.5% D. 60% E. None of these

**Q21.. Speed of the stream is 12 km/h and speed of boat in still water is 20 km/h. A boat takes a total of 36 hours for travelling downstream from Point X to Point Y and coming back to point Z which is midway of point X and Y. What is the distance between X and Y ?**

- A. 384 km B. 396 km C. 352 km D. 288 km E. None of these

1.

**S1. Ans (c)****Sol.**

$$\begin{aligned}\text{Required days} &= \frac{2}{3} \times \frac{12 \times 20}{12+20} \\ &= 5 \text{ days}\end{aligned}$$

2.

**S2. Ans(c)****Sol.**

$$\frac{1}{P} + \frac{1}{Q} = \frac{1}{30} \quad \dots\dots (1)$$

$$\frac{1}{P} + \frac{1}{Q} + \frac{1}{R} = \frac{1}{18} \quad \dots\dots (2)$$

By subtracting eqn (1) from (2), we get

$$\frac{1}{R} = \frac{1}{18} - \frac{1}{30}$$

$$\frac{1}{R} = \frac{5-3}{90}$$

$$R = 45 \text{ days}$$

3.

**S3. Ans (d)****Sol.**

$$\text{Time taken by B} = 24 \times \frac{2}{3} = 16 \text{ hours}$$

$$\begin{aligned}\text{Required days} &= \frac{1}{2} \times \frac{16 \times 24}{16+24} \\ &= 4.8 \text{ hours}\end{aligned}$$

4.

**S4. Ans(e)****Sol.** Let leak empty it in x hour, then

$$\frac{1}{30} - \frac{1}{x} = \frac{1}{36}$$

$$\frac{1}{x} = \frac{1}{30} - \frac{1}{36}$$

$$x = 180 \text{ hours}$$

5.

**S8. Ans (a)****Sol.**

Let the total work be 60 units.

$$\text{Efficiency of P} = \frac{60}{10} = 6 \text{ units/day}$$

$$\text{Efficiency of Q} = \frac{60}{12} = 5 \text{ units/day}$$

$$\text{Efficiency of P, Q \& R} = \frac{60}{4} = 15 \text{ units/day}$$

$$\text{Number of days taken by R} = \frac{60}{15-6-5} = 15 \text{ days}$$

$$\text{Efficiency of R} = \frac{60}{15} = 4 \text{ units/day}$$

$$\text{Required days} = \frac{60}{6+4} = 6 \text{ days}$$

6.

**S13. Ans(a)****Sol.**

Let total work be 96 units.

Let efficiency of Hema be  $4x$  units/day.

$$\text{Then, efficiency of Meena} = 4x \times \frac{100-75}{100} = x \text{ units/day}$$

$$\text{Efficiency of Veena} = 4x \times \frac{1}{2} = 2x \text{ units/day respectively}$$

ATQ,

$$4x + 2x = \frac{96}{8}$$

$$6x = 12$$

$$x = 2$$

$$\text{Required time} = \frac{96}{2 \times \frac{250}{100}} = 19.2 \text{ days.}$$

7.

**S2. Ans.(c)****Sol.**

Ratio of Mohan and Ram's age = 5 : 2

Ratio of Ram and Karan's age = 8 : 5

Ratio of Mohan, Ram and Karan's present age = 20 : 8 : 5

Let Mohan, Ram and Karan age be  $20x$ ,  $8x$  and  $5x$  respectively. $\therefore$  ATQ,

$$3x = 6$$

$$x = 2$$

 $\Rightarrow$  ratio of their ages after 10 years

$$= 40 + 10 : 16 + 10 : 10 + 10$$

$$= 50 : 26 : 20 = 25 : 13 : 10$$

8.

**S4. Ans.(d)****Sol.**

$$\text{Required probability} = \frac{{}^6C_2 \cdot {}^7C_1 + {}^8C_2 \cdot {}^{10}C_1 + {}^4C_2 \cdot {}^9C_1}{{}^{18}C_8}$$

$$= \frac{189}{286}$$

9.

5% for first three years,

$$3 \times 5\% = 15\%$$

10% for next five years,

$$5 \times 10\% = 50\%$$

Time = 12 years,

12% for the next 4 years,

$$4 \times 12\% = 48\%$$

$$\text{Total rate interest} = (15 + 50 + 48)\% = 113\%$$

113% corresponds to 6780

$$1\% \text{ corresponds to } 6780/113 = 60$$

100% will correspond to 6000.

Principal = Rs. 6000

Hence, option A is correct.

10.

**S3. Ans.(e)****Sol.**

Let the sum be Rs. P.

$$P \left[ \frac{11}{10} \times \frac{11}{10} - 1 \right] - \frac{P \times 2 \times 8}{100} = 225$$

$$\Rightarrow P \left[ \frac{21}{100} \right] - \frac{16P}{100} = 225$$

$$\Rightarrow P = \frac{225 \times 100}{5}$$

$$\Rightarrow P = \text{Rs. } 4500$$

11.

**S4. Ans.(d)****Sol.**

$$21 \text{ SP} - 21 \text{ CP} = 6 \text{ CP}$$

$$21 \text{ SP} = 27 \text{ CP}$$

$$\text{CP} = \frac{21 \text{ SP}}{27} = \frac{1620}{27} = \text{Rs. } 60$$

**12. Option C****Solution:**

Let the MP be Rs 100.

Then 30% discount = 100 - 30 = 70.

60% of 70 = 42.

Then he sold that at Rs 70 + 42 = Rs 112.

Then Required %ge is 112 - 100 = 12%.

**13. Option C****Solution:**

Let x be he travels the part 20 kmph.

Distance covered in this x hours = 20x km

then traveled the balance (8 - x) hours at 70 kmph.

Distance covered in this (8 - x) hours = (8 - x) \* 70 = (560 - 70x) km

The total distance traveled = 20x + 560 - 70x = 400

$$160 = 50x$$

$$x = 160/50 = 3.2 \text{ hours} = 3 \text{ hours and } 12 \text{ minutes.}$$

**14. Option A****Solution:**

Ratio of initial investment

$$7/2 : 4/3 : 6/5 = 105:40:36$$

Then the new ratio

$$[(105x \cdot 4) + (150/100 \cdot 105x \cdot 8)] : 40x \cdot 12 : 36x \cdot 12$$

$$= 1680x : 480x : 432x = 35:10:9$$

Then (35 + 10 + 9) 54 22680

$$9 \text{ ?} \Rightarrow \text{Rs } 3780.$$

**15. Option B****Solution:**

Let original length = x and original breadth = y.

Decrease in area

$$= xy - (80/100x \cdot 90/100y)$$

$$= xy - 18/25xy$$

$$= 7/25xy.$$

$$\text{Decreased \%ge} = (7/25xy \cdot 1/xy \cdot 100) = 28\%.$$

**16.**

As Amount becomes 130M, so Interest is  $130M - 10M = 120M$

Interest earned is 120M in 30 years.

$$I = \frac{PRN}{100}$$

$$120M = \frac{(10M \times R \times 30)}{100}$$

$$R = 40\%$$

Now, the same amount is Invested at Compound Interest.

$$\text{Amount} = \text{Principal} \times \left(1 + \frac{\text{Rate of Interest}}{100}\right)^{\text{Time Period}}$$

$$\begin{aligned} &= 10M \times (1 + 0.4)^2 \\ &= 10M \times 1.96 \\ &= 19.6M \end{aligned}$$

Hence, option B is correct.

17.

Let the principal = P and time = x years then the rate of interest = 2x% per annum

$$SI = 9P - P = 8P$$

$$\text{We know that, } SI = \frac{P \times R \times T}{100}$$

$$8P = \frac{P \times 2x \times x}{100}$$

$$\begin{aligned} x^2 &= 4 \times 100 \\ x &= 2 \times 10 = 20 \end{aligned}$$

Therefore, the rate of interest =  $2x = 40\%$  per annum

SI at the end of 15 years

$$SI = \frac{P \times 15 \times 40}{100} = 6P$$

$$\text{Amount} = P + SI = P + 6P = 7P$$

Hence, option D is correct.

18.

The total distance travelled by Rajdhani express till 11: PM =  $96 \times 2 = 192$  Km

Remaining distance =  $(540 - 192)$  Km = 348 Km

The relative speed =  $(96 + 49) = 145$  km/hr

The time when both train will collide =  $\frac{348}{145} = 2.4$  hours = 2 hours 24 mins

Time = 11:00 PM + 2 hours 24 minutes = 01: 24 AM

Hence, option A is correct.

19.

Let the trains meet after t hours from 7 : 00 pm

According to the question

$$48 \times \frac{3}{2} + 48 \times t = 60 \times t$$

$$\Rightarrow 72 = 60t - 48t$$

$$\Rightarrow 12t = 72$$

$$\Rightarrow t = 6$$

Required distance =  $60 \times 6 = 360$  Km

Hence, option D is correct.

20.

Ram's probability of getting selected =  $25\% = \frac{1}{4}$

Sham probability of getting selected =  $20\% = \frac{1}{5}$

The probability of Ram not getting selected =  $1 - \frac{1}{4} = \frac{3}{4}$

The probability of Sham not getting selected =  $1 - \frac{1}{5} = \frac{4}{5}$

The probability of both not getting selected =  $\frac{3}{4} \times \frac{4}{5} = \frac{3}{5} = 60\%$

Hence, option D is correct.

21.

Let the distance between X and Y is  $m$  km.

Speed of boat in upstream =  $20 - 12 = 8$  kmph

Speed of boat in downstream =  $20 + 12 = 32$  kmph

It takes 36 hours to complete the path.

$$\Rightarrow \frac{m}{32} + \frac{1}{2} \times \frac{m}{8} = 36$$

$$\Rightarrow \frac{m}{32} + \frac{m}{16} = 36$$

$$\Rightarrow \frac{3m}{32} = 36$$

$$\Rightarrow m = \frac{36 \times 32}{3}$$

$$\Rightarrow m = 384 \text{ km}$$

Hence, option A is correct.

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