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Sahi Prep Hai Toh Life Set Hai

Doubt Session

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INSTRUCTIONS FOR ATTACHING DOUBTS FOR FURTHER DOUBT SESSION

- If a doubt is not attached properly, it will not taken in the class.
- None of the question which is discussed in class will be taken in doubt session, if you haven't revised the class.
- **Without options and without mentioning which option is correct, no doubts will be entertained.**
- Maximum numbers of doubts, a student can ask in doubt session is 5.
- Please send all your doubts atleast 24 hours before Doubt Class.

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Q15. **A train takes 2½ hours less for a journey of 300 km, if its speed is increased by 20 km/h from its usual speed. How much time will it take to cover a distance of 192 km at its usual speed?**

(a) 6 Hrs. **(b) 2.4 Hrs.**
(c) 4.8 Hrs. **(d) 3 Hrs.**

let original speed : S

$$\frac{300}{S} - \frac{300}{S+20} = \frac{5}{2}$$

$$120\left[\frac{1}{S} - \frac{1}{S+20}\right] = 1$$

$$120 \cdot \frac{20}{S(S+20)} = 1$$

$$S(S+20) = 2400$$

$$S = 40$$

$$\frac{192}{40} = 4.8 \text{ hrs}$$

Kratika

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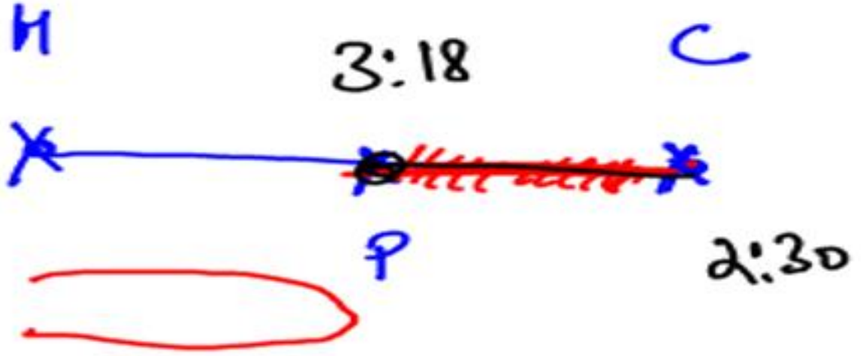

2 way → 24 Min

	Boy	Girl
Time	~~12 Min~~	~~48 Min~~
	1	: 4
Speed	4	: 1
	↓	↓
	24 Km/Hr	6 Km/Hr

15. A boy starts everyday from home to pick up his girlfriend from college at 3 : 30 p.m. One day his girlfriend left the college at 2 : 30 p.m. and start walking to home at 6 km/h. She meets her boyfriend in the way who start at his normal time and they reach home 24 minutes earlier than usual. Find his speed :

(a) 24 km/h (b) 66 km/h

Sanchit Sharma

6 am

9 2

999 . 10

558 = 18hr

19hr 20min

48. The distance between place A and B is 999 km. an express train leaves place A at 6 am and runs at a speed of 55.5 km/hr. The train stops on the way to 1 hour 20 minutes. It reaches B at.

(a) 1 : 20 am (b) 12 pm

(c) 6 pm (d) 11 pm

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QUESTIONS BASED ON ACCIDENT OF TRAINS

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Concept 1

Thour T (T+2hours

Aditya sanchit

5pm ?? sanchit 6pm

Diksha D D/2

Aditya T

sanchit extra (T+2hours 2 1

eg

Aditya

Sachit →

5:00 pm

5:30 pm

T hrs

(T+2) hrs

½ hr

2 hr

X Y

$\frac{PR}{RQ} = ??$

$\frac{1}{3}$

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* If Distance is constant

Speed is $S_1 : S_2$

Time $\frac{1}{S_1} : \frac{1}{S_2}$

$S_2 : S_1$

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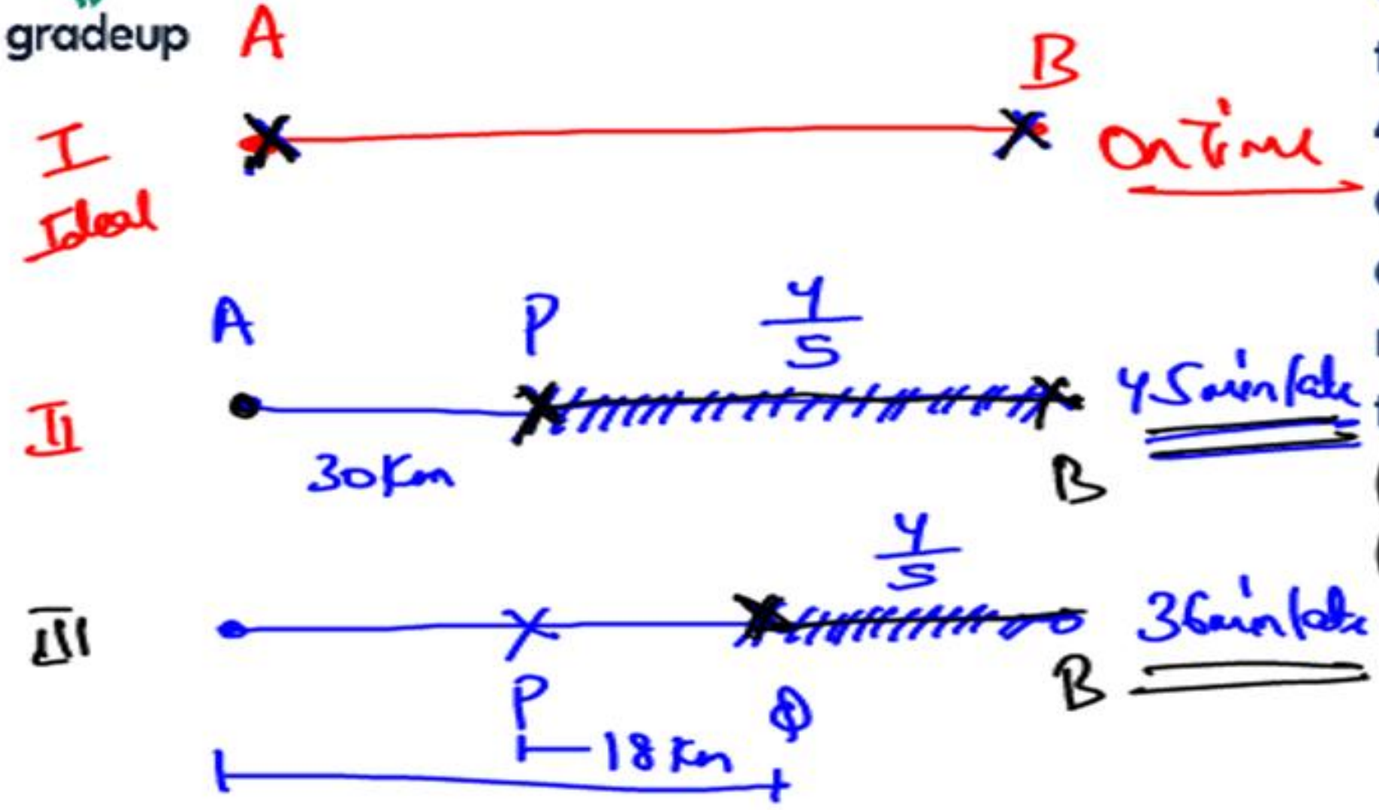
Q15. A train meets with an accident after travelling 30 kms, after which it moves with 4/5 of its original speed and arrives at the destination 45 minute late. Had the accident occurred 18 kms farther, it would have reached 9 minute earlier. Find the distance of the journey and original speed of the train.

(a) 120 km, 25kmph (b) 125km, 25kmph

(c) 130km, 30kmph (d) 120km, 30kmph



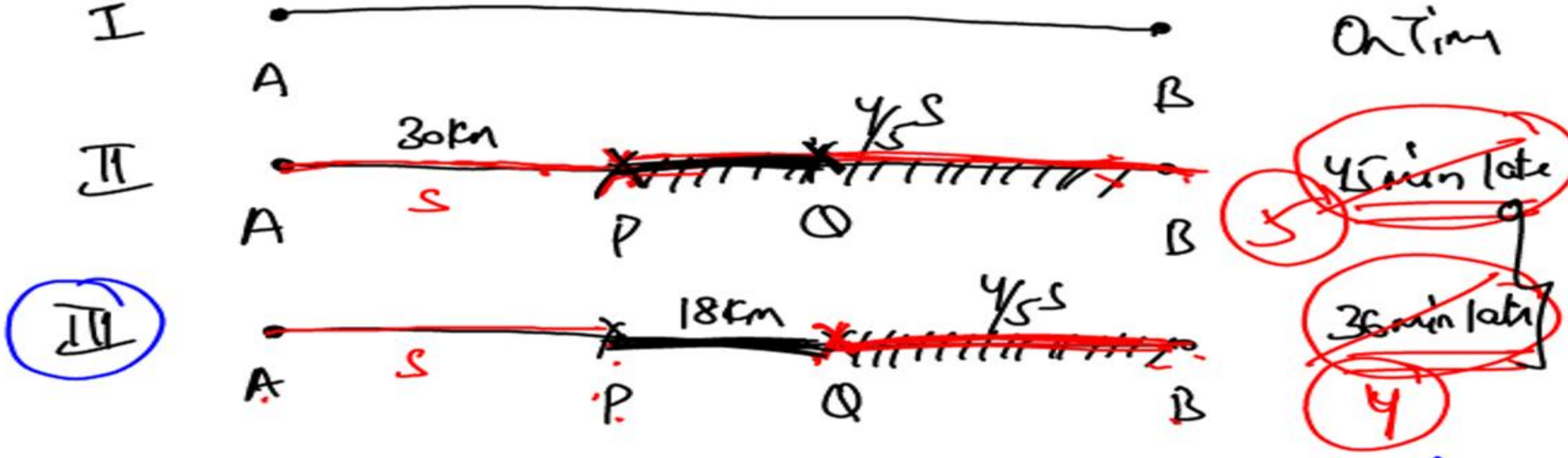
Let Distance = D

Speed = S

Detailed Approach

$\frac{D}{S} = T$

$$\begin{cases} \frac{30}{S} + \frac{D-30}{\frac{4}{5}S} = \frac{D}{S} + \frac{45}{60} \\ \frac{48}{S} + \frac{D-48}{\frac{4}{5}S} = \frac{D}{S} + \frac{36}{60} \end{cases}$$



PB → 90 Km

AP → 30 Km

AB → 120 Km

III (PQ) $S \cdot T = 18$ $S \cdot \frac{36}{60} = 18$

II (PQ) $\frac{4S}{5} \cdot \frac{5T}{4} = 18$ $S = 30 Km/h$

$\frac{1}{4}T = 9$ $T = 36 min$

Ans. (d)

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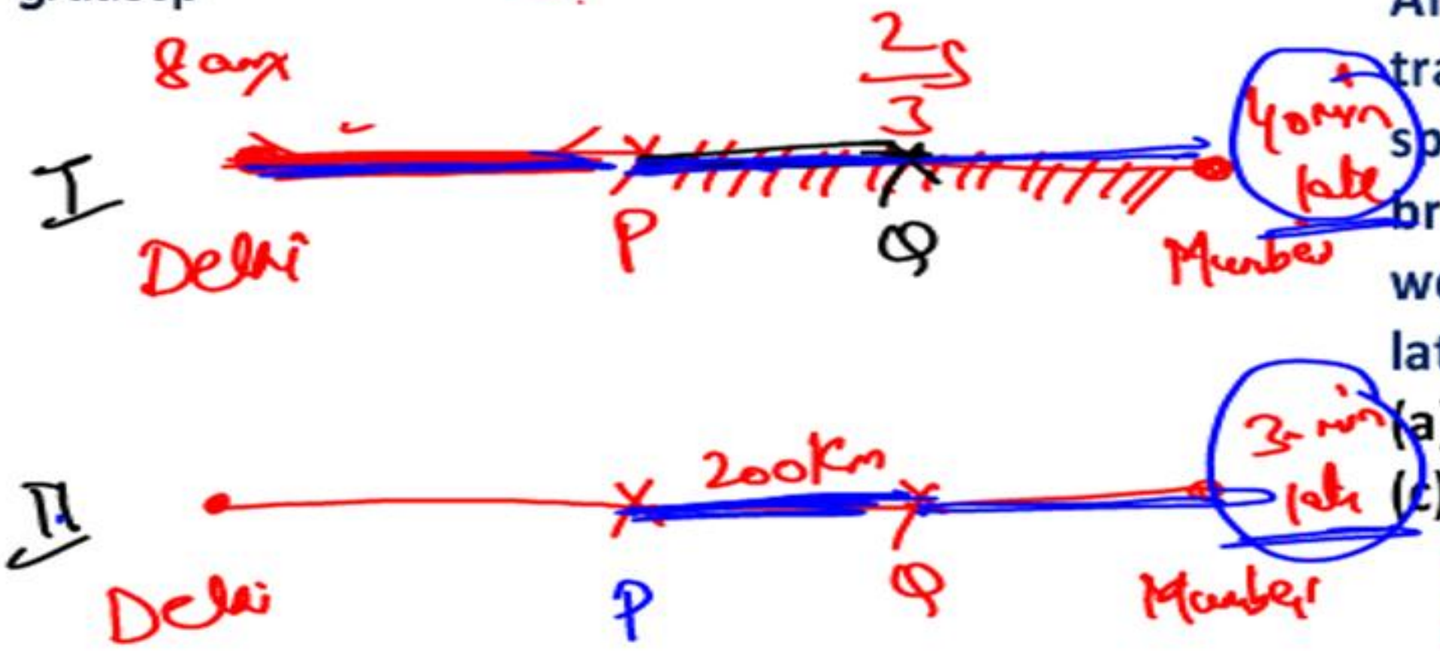
Q16. A train starts from Delhi at 8:00 am. After 6 Hrs. there was a breakdown in the train, due to which it travels 2/3 of its normal speed and hence becomes 40 mins late. If the breakdown occurred 200 Km farther then it would have reached its destination 30 min late. Find the distance covered by the train ?

(a) 2800 km (b) 3600 km

(c) 4400 km (d) 5200 km



$D_{P\,Mumbai} \rightarrow 800$ Km

3600 Km

II (PQ)

$S \cdot T = 200$

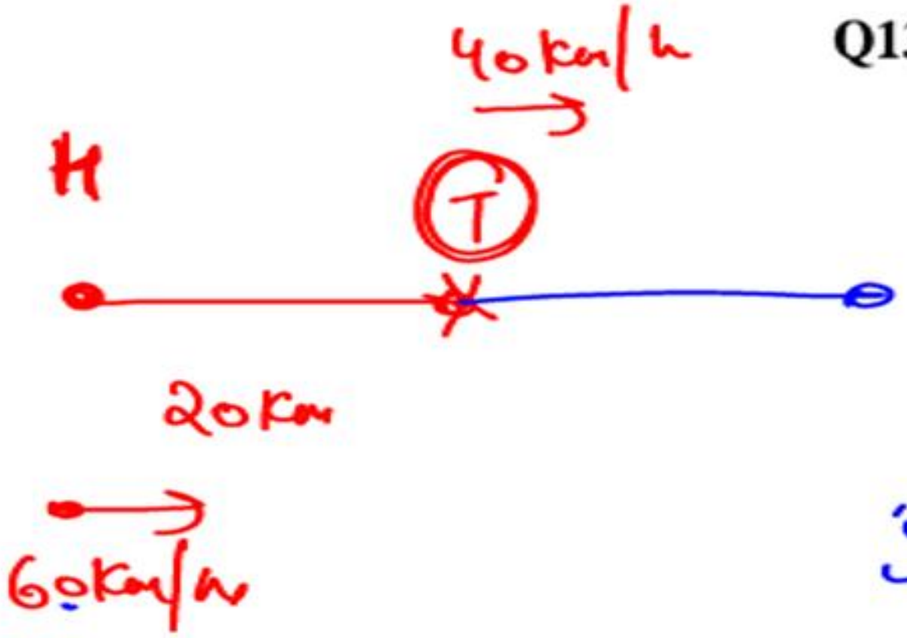
$\frac{2}{3}S \cdot \frac{3}{2}T = 200$

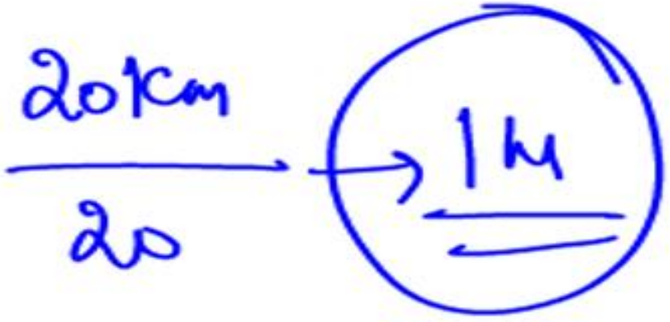
$\frac{1}{2}T = 10$ $\quad T = 20$ Min

$S = 600$ km/h

$S \cdot \frac{1}{3} = 200$

Ans. (c)





Q13. **A thief steals a car parked in a house and goes away with a speed of 40 kmph. The theft was discovered after half an hour and immediately the owner sets off in another car with a speed of 60 kmph. When will the owner meet the thief?**

(a) 55 km from the owner's house and one hour after the theft.

(b) 60 km from the owner's house and 1.5 hours after the theft

(c) 60 km from the owner's house and 1.5 hours after the discovery of the theft

(d) 55 km from the owner's house and 1.5 hours after the theft

Ans. (b)

Neha

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Q13. The Sabarmati Express left Ahmadabad for Mumbai. Having travelled 300 km, which constitutes $66\frac{2}{3}\%$ of the distance between Ahmadabad and Mumbai, the train was stopped by a red signal. Half an hour later, the track was cleared and the engine driver, having increased the speed by 15 km per hour, arrived at Mumbai on time. Find the initial speed of the Sabarmati Express.

(a) 60 km/h
(b) 48 km/h
(c) 72 km/h
(d) 120 km/h

$\frac{1}{2}$ M

$$\frac{150}{S} - \frac{150}{S+15} = \frac{1}{2}$$

$$300\left[\frac{(S+15)-S}{S(S+15)}\right] = 1$$

$$S(S+15) = 4500$$

$$S = 60 \text{ km/h}$$

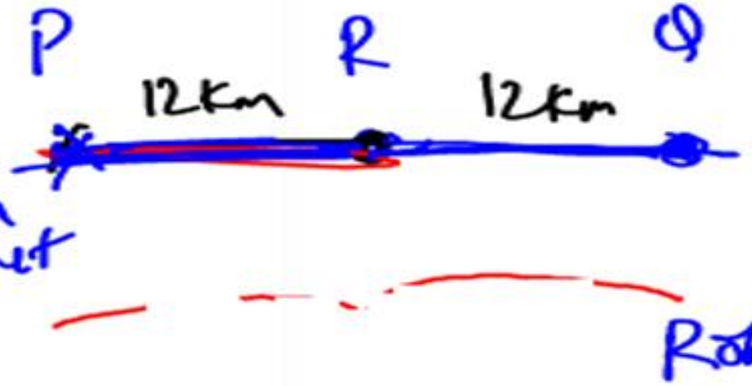
Ans. (a)

Neha

gradeup

Q21. **Mohit and Rohit start simultaneously from two towns, P and Q, towards Q and P respectively at 8:00 AM. R is a checkpost which is midway between P and Q. Both Mohit and Rohit turn back towards their respective starting points whenever they reach R and every time they reach their starting points they turn back and return to R. If the speeds of Mohit and Rohit are 45 km/h and 60 km/h respectively and PQ = 24 km, when will they reach R at the same time?**

(a) 10 : 24 AM
(b) 11 : 36 AM
(c) 2 : 12 PM
(d) never reach R at the same time



Mohit Time PR → $\frac{12 \cdot 60}{45}$ → 16 min

Rohit → $\frac{12 \cdot 60}{60}$ → 12 min

Mohit R: 16, 48, 80, 96, ---

Rohit R: 12, 36, 60, ---

$16(2x+1) = 12(2x+1)$

Ans. (d)

Neha

$16(2x+1) = 12(2y+1)$

L.H.S is a multiple of 16

But R.H.S can never be 16

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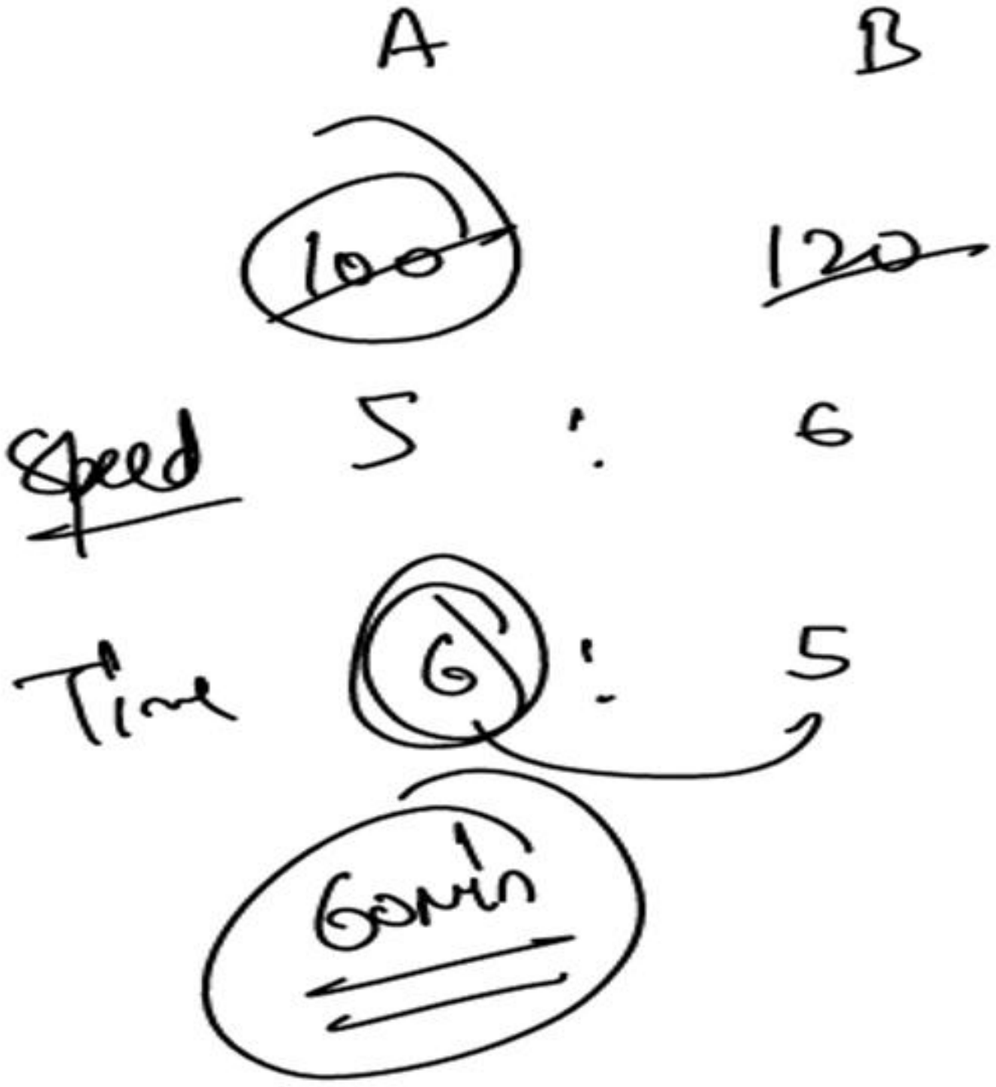


Two racers run at a speed of 100 m/min and 120 m/min, respectively. If the second racer takes 10 minutes less than the first to complete the run, then how long is the race?

A 1 km

B 6 km

C 2 km
WRONG

D 4 km

100 X 60
= 6000 M

Neha

gradeup

Q11. A man travels by a motor boat down a river to his office and back. With the speed of the river unchanged, if he doubles the speed of his motor boat, then his total travel time gets reduced by 75%. The ratio of the original speed of the motor boat to the speed of the river is:

(a) $\sqrt{6} : \sqrt{2}$ **(b) $\sqrt{7} : 2$**

(c) $2\sqrt{5} : 3$ **(d) $3 : 2$**

B → Speed of Boat

S → Speed of stream

$$\frac{D}{B+S} + \frac{D}{B-S} = T \quad \text{--- (1)}$$

$$\frac{D}{2B+S} + \frac{D}{2B-S} = \frac{T}{4} \quad \text{--- (2)}$$

$$D\left[\frac{2B}{B^2-S^2}\right] = 4T$$

$$D\left[\frac{4B}{4B^2-S^2}\right] = T$$

$$\frac{2B}{B^2-S^2} \times \frac{4B^2-S^2}{4B} = 4$$

$$4B^2 - S^2 = 8B^2 - 8S^2$$

$$4B^2 = 7S^2$$

$$\frac{B^2}{S^2} = \frac{7}{4}$$

$$\frac{B}{S} = \frac{\sqrt{7}}{2}$$

Neha

gradeup

Q15. A boat takes 38 hours for travelling downstream from point A to point B and coming back to point C midway between A and B. If the velocity of the stream is 4 kmph and the speed of the boat in still water is 14 kmph, what is the distance between A and B?

(a) 120 km
(b) 180 km
(c) 240 km
(d) 360 km

Neha

gradeup

Q8. A boat sails downstream from point A to point B, which is 20 km away from A, and then returns to A. If the actual speed of boat (in still water) is 3 km/hr then the trip from A to B takes 16 hrs less than that from B to A. What must be the speed of the boat for the trip to take exactly 80 minutes in travelling from A to B.

(a) 12 km/hour (b) 13 km/hour

(c) 10 km/hour (d) 9 km/hour

Neha

gradeup

Q5. A boat has to travel a distance of 12 km starting from point P to point Q. It covers 8 km downstream from point P in 20 min and remaining 4 km upstream to reach the point Q. If the downstream speed was twice the upstream speed, what is the average speed of boat throughout the journey?

(a) 16 km/hour **(b) 15 km/hour**

(c) 18 km/hour **(d) 20 km/hour**

Neha

gradeup

Q4. A man rows to a place 35 km in distance and comes back in 10 hours 30 minutes. He found that he could row 5 km with the stream in the same time as he can row 4 km against the stream. Find the rate of flow of the stream.

(a) 1 km/hour **(b) 0.5 km/hour**

(c) 0.75 km/hour **(d) 1.5 km/hour**

Neha

gradeup

A boy increases his speed to 9/5 times of his original speed. By doing this, he reaches his school 40 minutes before the usual time. How much time (in minutes) does he take usually?

A 120
WRONG

B 30

C 90

D 45

Neha

gradeup

Q9. **Rajdhani express running at the speed of 180 km/hr passed a pole in 6 seconds, also passed a goods train in 60 seconds and Shatabdi express in 7.2 seconds, while goods train is moving in the same direction that of Rajdhani express. If speed of goods train and Shatabdi express is 150 km/hr and 120 km/hr respectively. Then in how much time the goods train will pass Shatabdi express, when both running in the opposite direction?**

(a) 5.55 seconds **(b) 6.66 seconds**

(c) 7.77 seconds **(d) 8.88 seconds**

Neha

gradeup

To travel 612 km, Train A takes 9 hours more than Train B. If the speed of the Train A is doubled, it takes 3 hours less than Train B. The speed (in km/h) of Train B is:

A 30.6 km/h

B 1.2 km/h

C 40.8 km/h

CORRECT

D 51 km/h

Neha

gradeup

14. A Rabbit and a turtle started a race of 2 km with speed 3 m/s and 5 m/min respectively. After taking some rest during the race, the rabbit again started with same speed. If turtle reached the destination 5 min earlier than rabbit, find the times wasted by rabbit.

(a) 6 hours

(b) $6\frac{61}{108}$ hours

(c) $6\frac{60}{108}$ hours

(d) $6\frac{2}{3}$ hours

Divyanshu

gradeup

15. In a 1000 metres race Ravi gives Vinod a start of 40m and beats him by 19 seconds. If Ravi gives a start of 30 seconds then Vinod beats Ravi by 40m. What is the ratio of speed of Ravi to that of Vinod?

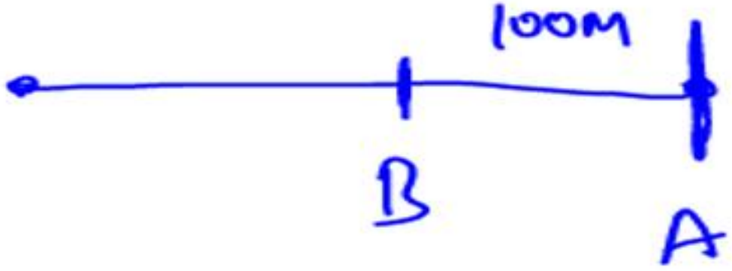
(a) 4 : 5
(b) 6 : 5
(c) 3 : 8
(d) 5 : 4

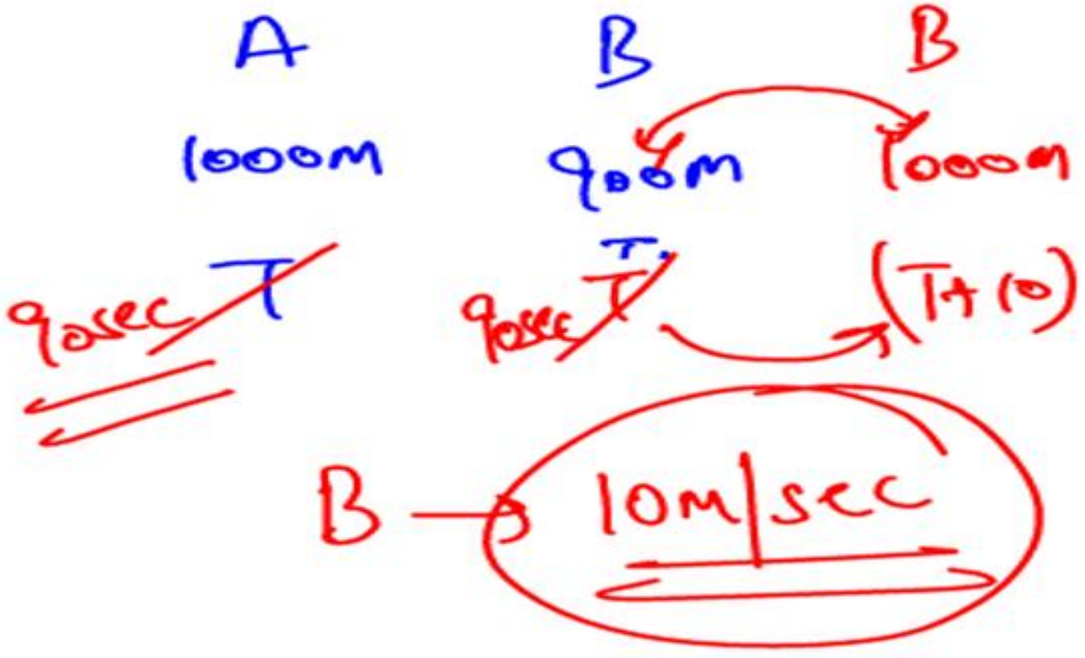
Divyanshu

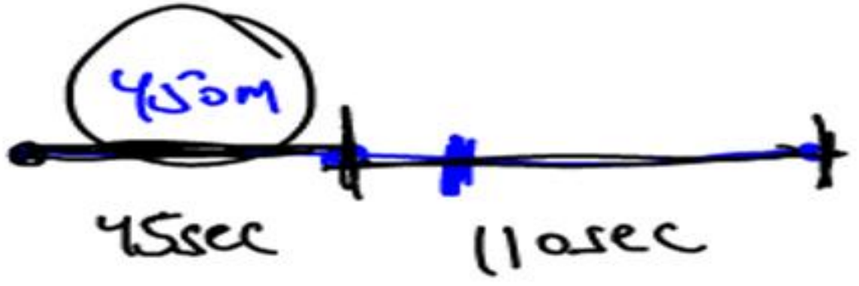
gradeup

6. In a race of 1000 m, A beats B by 100 m or 10 seconds. If they start a race of 1000 m simultaneously from the same point and if B gets injured after running 50 m less than half the race length and due to which his speed gets halved, then by how much time will A beat B?

(a) 65 seconds
(b) 60 seconds
(c) 50 seconds
(d) 45 seconds







B → 155sec
A → 90sec

Abhishek

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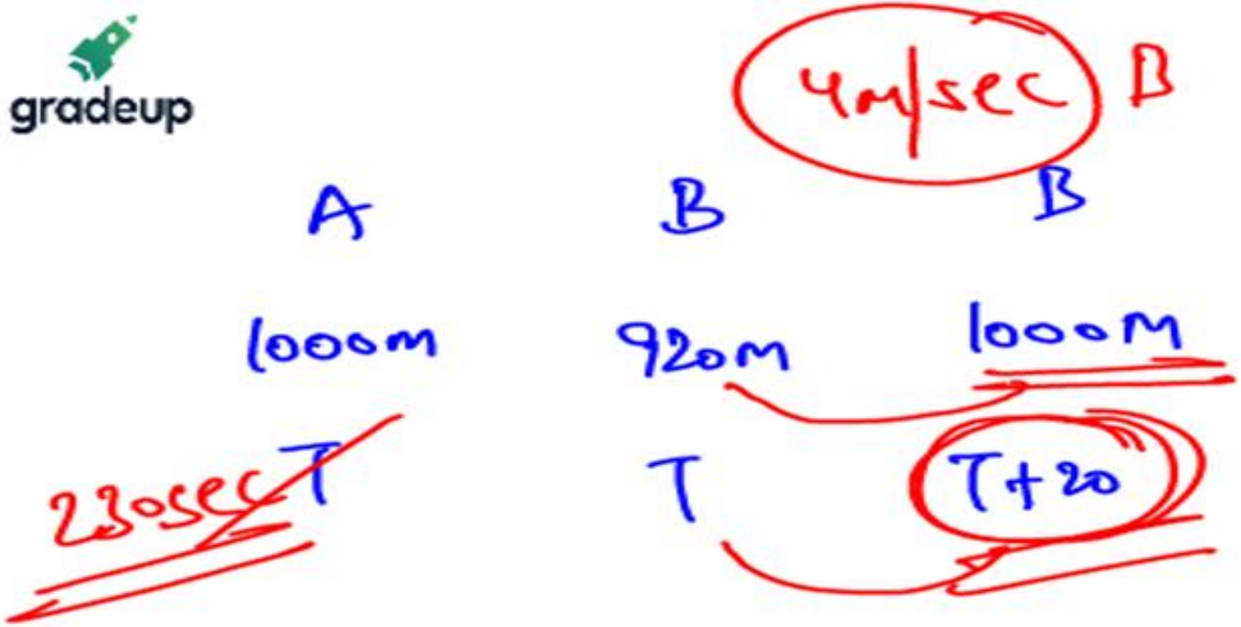
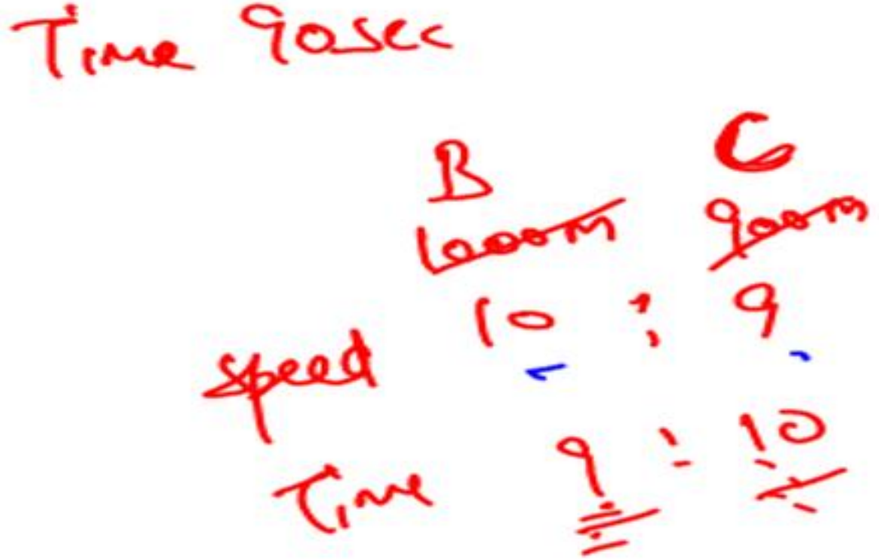
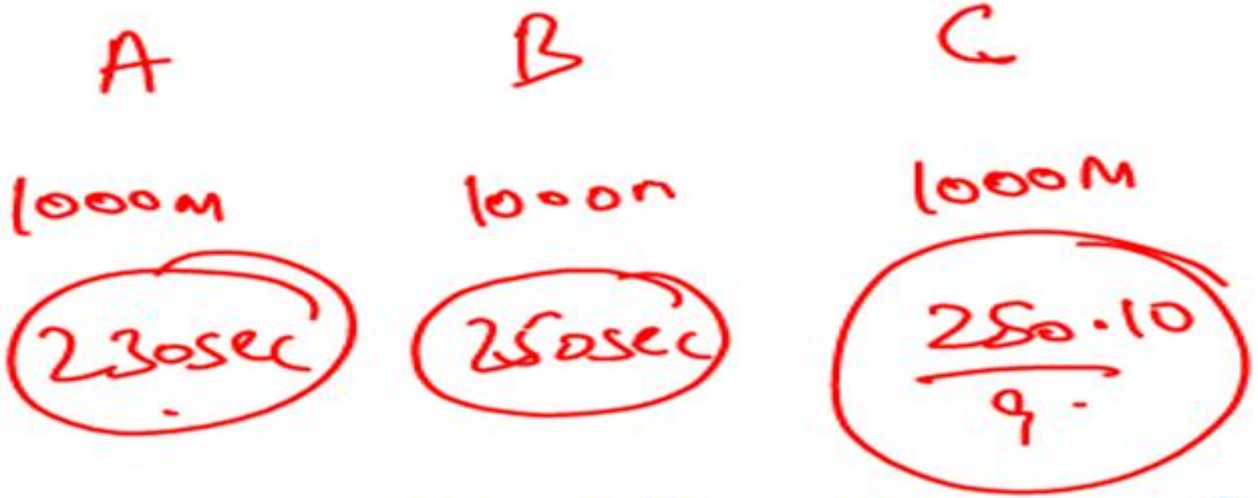


11. In a 1 km race A wins over B by 80 m or 20 seconds. B can give a start of 100 m to C in 1 km race. Find out that by how much time A will win over C ? Also, find the ratio of speeds of B and C.

(a) 47.77 sec, 10:9 (b) 45 sec, 8:9

(c) 47.77 sec, 8:9 (d) 46.67 sec, 10:9





$\frac{2500}{7} - 230 = \frac{430}{9} = 47\frac{7}{9}$

Abhishek

gradeup

Q15. A train meets with an accident after travelling 30 kms, after which it moves with 4/5 of its original speed and arrives at the destination 45 minute late. Had the accident occurred 18 kms farther, it would have reached 9 minute earlier. Find the distance of the journey and original speed of the train.

(a) 120 km, 25kmph (b) 125km, 25kmph

(c) 130km, 30kmph (d) 120km, 30kmph

Abhishek

gradeup

$$\begin{cases} \frac{12}{B-S} - \frac{12}{B+S} = 6 \\ \frac{12}{2B-S} - \frac{12}{2B+S} = 1 \end{cases}$$

$$12\left[\frac{2S}{B^2-S^2}\right] = 6 \quad -(1)$$

$$12\left[\frac{2S}{4B^2-S^2}\right] = 1 \quad -(2)$$

$$\frac{4B^2-S^2}{B^2-S^2} = 6$$

$$4B^2 - S^2 = 6B^2 - 6S^2$$

$$2B^2 = 5S^2$$

$$12 \cdot 2S = 9S^2$$

$$S = \frac{24}{3} = 8$$

Q9. At his usual rowing rate, Amit can travel 12 km downstream in a certain river in 6 hours less than it takes him to travel the same distance upstream. But if he could double his usual rowing rate for his 24 km round trip, the downstream 12 km would then take only one hour less than the upstream 12 km. What is the speed of the current in kmph hour?

(a) $1\frac{1}{3}$ kmph

(b) $1\frac{2}{3}$ kmph

(c) $2\frac{1}{3}$ kmph

(d) $2\frac{2}{3}$ kmph

Abhishek

gradeup

Q5. A boat has to travel a distance of 12 km starting from point P to point Q. It covers 8 km downstream from point P in 20 min and remaining 4 km upstream to reach the point Q. If the downstream speed was twice the upstream speed, what is the average speed of boat throughout the journey?

(a) 16 km/hour (b) 15 km/hour

(c) 18 km/hour (d) 20 km/hour

Abhishek

gradeup

Q21. **Mohit and Rohit start simultaneously from two towns, P and Q, towards Q and P respectively at 8:00 AM. R is a checkpost which is midway between P and Q. Both Mohit and Rohit turn back towards their respective starting points whenever they reach R and every time they reach their starting points they turn back and return to R. If the speeds of Mohit and Rohit are 45 km/h and 60 km/h respectively and PQ = 24 km, when will they reach R at the same time?**

(a) 10 : 24 AM
(b) 11 : 36 AM
(c) 2 : 12 PM
(d) never reach R at the same time

Done

Barsa

gradeup

Q29. **A man leaves his home and walks at a speed of 12 km per hour, reaching the railway station 10 minutes after the train had departed. If instead he had walked at a speed of 15 km per hour, he would have reached the station 10 minutes before the train's departure. The distance (in km) from his home to the railway station is**

(a) 18 **(b) 20**

(c) 24 **(d) 25**

Barsa

gradeup

Q19. A man travels 450 km to his home partly by train and partly by car. He takes 8 hrs 40 mins if he travels 240 km by train and rest by car. He takes 20mins more if he travels 180 km by train and the rest by car. The speed of the car in km/hr is how much?

(a) 45 (b) 50

(c) 60 (d) 48

Barsa

gradeup

Q20. **Village A is separated from village B by a distance of 42 km. Geeta goes by bicycle whereas Meena goes by car, which is 6 times as fast as Geeta's bicycle. If at 9 a.m., Geeta starts from B at 5 km/hr by bicycle and Meena starts from A on her car simultaneously. Unfortunately, Meena's car breaks down half way between A and B. Fortunately, a farmer who was passing by gives him a lift immediately to B on his tractor, which is only half as fast as Geeta's bicycle, then when will they meet?**

(a) 11:42 am **(b) 11.56 am**

(c) 12:02 pm **(d) 12:42 pm**

gradeup

Q14. A man went downstream for 28 km in a motor boat and immediately returned. It took the man twice as long to make the return trip. If the speed of the river flow were twice as high, the trip downstream and back would take 672 minutes. Find the speed of the boat in still water and the speed of the river flow.

(a) 8 km/hr, 2 km/hr
(b) 9 km/hr, 6 km/hr
(c) 12 km/hr, 3 km/hr
(d) 9 km/hr, 3 km/hr

Barsa

gradeup

Q5. **Each wheel of a bus is making 7 revolutions per second. If the diameter of a wheel is 56 cm, then the speed of the bus (in cm/sec) would be:**

(a) 616
(b) 1232
(c) 1000
(d) 176

Barsa

gradeup

Q17. **A, B and C can walk at the speed of 3, 4 and 5 km. They departs from Pune at 1, 2 and 3 o'clock respectively. When B reaches to A, then B sends a message to C by A. when will C get the message?**

(a) 4:15 **(b) 5:15**

(c) 6:25 **(d) Can not be determined**

Barsa

gradeup

Q11. A man travels by a motor boat down a river to his office and back. With the speed of the river unchanged, if he doubles the speed of his motor boat, then his total travel time gets reduced by 75%. The ratio of the original speed of the motor boat to the speed of the river is:

(a) $\sqrt{6} : \sqrt{2}$ (b) $\sqrt{7} : 2$

(c) $2\sqrt{5} : 3$ (d) $3 : 2$

Pritilata Mukherjee

gradeup

Q14. A man went downstream for 28 km in a motor boat and immediately returned. It took the man twice as long to make the return trip. If the speed of the river flow were twice as high, the trip downstream and back would take 672 minutes. Find the speed of the boat in still water and the speed of the river flow.

(a) 8 km/hr, 2 km/hr
(b) 9 km/hr, 6 km/hr
(c) 12 km/hr, 3 km/hr
(d) 9 km/hr, 3 km/hr

Pritilata Mukherjee

Q16. Two trains start simultaneously from two tunnels towards each other. The first train covers 8% of the distance between the two tunnels in 3 hours, the second train covered 7/120 of the distance in 2 hours 30 minutes. Find the speed (feet/h) of the second train. If the first train travelled 800 feet to the meeting point:

(a) 28 feet/hr
(b) 35 feet/hr
(c) 42 feet/hr
(d) None of these

gradeup

9. A and B run a kilometre and A wins by 25 sec. A and C run a kilometre and A wins by 275 m. When B and C run the same distance, B wins by 30 sec. The time taken by A to run a kilometre is

(1) 2 min 25 sec
(2) 2 min 50 sec
(3) 3 min 20 sec
(4) 3 min 30 sec

Pritilata Mukherjee

gradeup

Q29. A man leaves his home and walks at a speed of 12 km per hour, reaching the railway station 10 minutes after the train had departed. If instead he had walked at a speed of 15 km per hour, he would have reached the station 10 minutes before the train's departure. The distance (in km) from his home to the railway station is

(a) 18 (b) 20

(c) 24 (d) 25

Rahul

A train stopped for one hour due to stuck after 3 hrs. accident. After that train runs at 75% of its normal speed and reached the destination by 4 hours delay. If the accident have got place 150 km away on that track then train would have been just 3.30 hours late. Find the distance and speed.

1) 2400 Km., 70 Km/hr.
2) 1400 Km., 80 Km/hr
3) 4200 Km. 90 Km/hr.
4) 1200 Km., 100 Km/hr
5) None of these.

Lovely

gradeup

A traveler counts the pole along railway track. If poles are at a distance of 50 m and train is travelling at 48 kmph then how many poles train will cross in a minute?

1) 16
2) 18
3) 17
4) 15
5) None of these.

Lovely

gradeup

If speed of train is increased by 5 Km/h then it covers 300 km in two hours less. Find trains normal speed.

1) 30 Km./hr. 2) 25 Km./hr. 3) 20 Km./hr.
4) 45 Km./hr. 5) None of these.

Lovely

gradeup

A train running at 60kmph catches another train running in same direction and in 18 seconds left behind by 120 metres. What is the speed of other train? *(SSC - Graduate Level - Main - 2011)*

1) 26 Km/hr. 2) 35 Km/hr. 3) 36 Km/hr.

4) 63 Km/hr. 5) None of these.

Lovely