TIME AND DISTANCE

- Distance = Speed × Time, Speed = $\frac{Distance}{Time}$, Time = $\frac{Distance}{Speed}$

  1 m/s =18/5 km/h, 1 km/h =5/18 m/s
- If the ratio of the speeds of A and B is a:b, and the the ratio of the times taken by them to cover the same distance is (1/a):(1/b) or b:a
- Suppose a man covers a certain distance at **x km/hr** and an equal distance at **y km/hr**. Then, the average speed during the whole journey is **[(2xy)/(x+y)]**
- If a man travels different distances d1, d2, d3,..... and so on in different time t1, t2, t3 respectively then,

  Average speed = $\frac{\text{total travelled distance}}{\text{total time taken in travelling distance}} = \frac{d1+d2+d3+..}{t1+t2+t3+..}$
- If d1 distance is travelled in t1 time and d2 distance is travelled in t2 time then,

  d1 t2=d2 t1 or **(d1/t1) = (d2/t2)**

Q.1) A man walking at the rate of 5km/hr. crosses a bridge in 15minutes. The length of the bridge (in metres) is

(A) 600
(B) 750
(C) 1000
(D) 1250

Ans: D

Solution: Speed of the man = 5km/hr = 5 x (1000/60) = 250/3 m/min

Time taken to cross the bridge = 15 minutes

Length of the bridge= speed × time = (250/3) x 15 = 1250m

Q.2) A man travelled a certain distance by train at the rate of 25 kmph. and walked back at the rate of 4 kmph. If the whole journey took 5 hours 48 minutes, the distance was

(A) 25 km
(B) 30 km
(C) 20 km
(D) 15 km

Ans: C

Solution:

Let the distance be *x* km. Total time = 5 hours 48 minutes = 5+(48/60) = 29/5 hours

(X/25) + (x/4) = 29/5 ⇒ 5 * 29x = 29 * 100

X = 20 km

Q.3) A boy goes to his school from his house at a speed of 3 km/hr and returns at a speed of 2 km/hr. If he takes 5 hours in going and coming, the distance between his house and school is:

(A) 6 km
(B) 5 km
(C) 5.5 km
(D) 6.5 km

Ans: A

Solution: Let the required distance be *x* km. Then,

$(x/5) + (x/2) = 5 \quad \Rightarrow 5x = 6 * 5 \quad \Rightarrow x = 6$ km

Q.4) A and B travel the same distance at speed of 9 km/hr and 10 km/hr respectively. If A takes 36 minutes more than B, the distance travelled by each is

(A) 48 km
(B) 54 km
(C) 60 km
(D) 66 km

Ans: B

Solution: Let the distance between A and B be *x* km, then

$(x/9) - (x/10) = 36/60 = 3/5$

$X = (3/5) * 90 = 54$ km

Q.5) A person started his journey in the morning. At 11 a.m. he covered 3/8 of the journey and on the same day at 4.30 p.m. he covered 5/6 of the journey. He started his journey at

(A) 6.00 a.m.
(B) 3.30 a.m.
(C) 7.00 a.m.
(D) 6.30 a.m.

Ans: D

Solution: Difference of time = 4.30 p.m – 11.a.m = 11/2 hours

Distance covered in 11/2 hours = (5/6) – (3/8) = 11/24

11/24 part of the journey is covered in 11/2 hours

3/8 part of the journey is covered in = (11/2) * (24/11) * (3/8) = 9/2 hours

From this we know that he started is journey at 6.30 a.m.

Q.6) Two men start together to walk certain distance, one at 5 km/h and another at 8 km/h. The latter arrives one hour before the former. Find the distance.

(A) 8 km
(B) 7 km
(C) 13.33 km
(D) 9 km

Ans: C

Solution: Let the distance be x km, then

x/5 – x/8 = 1

3x = 40 ⇒ x = 40/3 ⇒ x = 13.33 km

Q.7) A train starts from a place A at 6 a.m. and arrives at another place B at 4.30 p.m. on the same day. If the speed of the train is 40 km per hour, find the distance travelled by the train?

(A) 420 km
(B) 230 km
(C) 320 km
(D) 400 km

Ans: A

Solution: Time = $10\frac{1}{2}\ hours$ = 21/2 hours

Distance Covered = (21/2) * 40 = 420 km

Q.8) Walking at the rate of 4 km an hour, a man covers a certain distance in 3 hours 45 minutes. If he covers the same distance on cycle, cycling at the rate of 16·5 km/hour, the time taken by him is

(A) 55.45 minutes
(B) 54.55 minutes
(C) 55.44 minutes
(D) 45.55 minutes

Ans: B

Solution: Distance Covered on foot = 4 x $3\frac{3}{4} = 15\ km$

Time taken on cycle = Distance/speed = (15*60)/16.5 = 54.55 minutes

Q.9) A man walks '*a*' km in '*b*' hours. The time taken to walk 200 metres is

(A) 200*b*/*a* hours
(B) *b*/5*a* hours
(C) *b*/*a* hours
(D) *ab*/200 hours

Ans: B

Solution: Man's speed =Distance/Time=*a*/*b* kmph =1000*a*/*b* m/hour
Time taken in walking 200 metre = 200/(1000*a/b)* = *b*/5a hours

Q.10) A bullock cart has to cover a distance of 120 km. in 15 hours. If it covers half of the journey in 3/5th time, the speed to cover the remaining distance in the time left has to be

(A) 6.4 km/hr
(B) 6.67 km/hr
(C) 10 km/hr
(D) 15 km/hr

Ans: C

Solution: Remaining time = (2/5) * 15 = 6 hours
Therefore, Required speed = 60/6 = 10 kmph

Q.11) Sarita and Julie start walking from the same place in the opposite directions. If Julie walks at a speed of 5/2 km/hr and Sarita at a speed of 2 km/hr, in how much time will they be 18 km apart?

(A) 4.0 hrs
(B) 4.5 hrs
(C) 5.0 hrs
(D) 4.8 hrs

Ans: A

Solution: Relative speed = [(5/2) + 2] kmph = 9/2 kmph
Time = Distance/Relative speed =18/ (9/2) = (18 * 2)/9 = 4 hours

Q.12) A car driver leaves Bangalore at 8.30 A.M. and expects to reach a place 300 km from Bangalore at 12.30 P.M. At 10.30 he finds that he has covered only 40% of the distance. By how much he has to increase the speed of the car in order to keep up his schedule?

(A) 45 km/hr
(B) 40 km/hr
(C) 35 km/hr
(D) 30 km/hr

Ans: D

Solution: Distance covered by car in 2 hours = (300 * 40)/100 = 120 km
Remaining distance = 300 – 120 = 180 km
Remaining time = 4 – 2 = 2 hours
Required speed = 180/2 = 90 kmph
Original speed of car =120/2 = 60 kmph
Required increase in speed = 90 – 60 = 30 kmph

Q.13) Motor-cyclist P started his journey at a speed of 30 km/hr. After 30 minutes, motor-cyclist Q started from the same place but with a speed of 40 km/hr. How much time (in hours) will Q take to overtake P?

(A) 1
(B) 3/2
(C) 3/8
(D) 2

Ans: B

Solution: Distance covered by motor cyclist P in 30 minutes = 30 × (1/2) = 15 km
Relative speed = 40 – 30 = 10 kmph
Required speed = Time taken to cover is km at 10 kmph = 15/10 = 3/2 hours

Q.14) A is twice as fast as B and B is thrice as fast as C is. The journey covered by C in 3/2 hours will be covered by A in

(A) 15 minutes
(B) 20 minutes
(C) 30 minutes
(D) 1 hour

Ans: A

Solution: Speed of B = x kmph (let) Speed of A = $2x$ kmph, Speed of C = $x/3$ kmph
Speed of A/Speed of C = 2x/(x/3) = 6
Therefore, Required time = 1/6 of 3/2 hours = 1/4 hour = 15 minutes

Q.15) The distance between 2 places R and S is 42 km. Anita starts from R with a uniform speed of 4 km/h towards S and at the same time Romita starts from S towards R also with some uniform speed. They meet each other after 6 hours. The speed of Romita is

(A) 18 km/hour
(B) 6 km/hour
(C) 20 km/hour
(D) 3 km/hour

Ans: D

Solution: Speed of Romita = x kmph (let)

Distance = Speed × Time

According to the question,

$(4 \times 6) + (x \times 6) = 42$

$6x = 42 - 24 = 18$ ➔ $x = 18 \div 6 = 3$ kmph

Q.16) A farmer travelled a distance of 61 km in 9 hours. He travelled partly on foot at the rate 4 kmph and partly on bicycle at the rate 9 kmph. The distance travelled on foot is

(A) 16 km
(B) 14 km
(C) 17 km
(D) 15 km

Ans: A

Solution: Distance travelled by farmer on foot = x km (let)

So, Distance covered by cycling = $(61-x)$ km.

Time =Distance/Speed

According to the question,

$(x/4) + (61-x)/9 = 9$

$5x + 244 = 9 \times 9 \times 4 = 324$

$5x = 324 - 244 = 80$

$x = 80/5 = 16$ km. x

Q.17) A car can finish a certain journey in 10 hours at the speed of 42 kmph. In order to cover the same distance in 7 hours, the speed of the car (km/h) must be increased by:

(A) 12
(B) 15
(C) 18
(D) 24

Ans: C

Solution: Distance covered by car = 42 × 10 = 420 km.

New time = 7 hour. So, Required speed =420/7 = 60 kmph.

So, Required increase = (60 – 42) kmph = 18 kmph

Q.18) The length of a train and that of a platform are equal. If with a speed of 90 km/hr the train crosses the platform in one minute, then the length of the train (in metres) is:

(A) 500

(B) 600

(C) 750

(D) 900

Ans: C

Solution: Let the length of train be x metre

Speed = 90 km/hr = 90 * (5/18) = 25 metre/sec.

So, Distance covered in 60 sec. = 25 × 60 = 1500 metres

Now, according to question, 2x = 1500 ⇒ x = 750 metre

Q.19) A train with a uniform speed passes a platform, 122 metres long, in 17 seconds and a bridge, 210 metres long, in 25 seconds. The speed of the train is

(A) 46.5 km/hour

(B) 37.5 km/hour

(C) 37.6 km/hour

(D) 39.6 km/hour

Ans: D

Solution: Let the length of the train be x

According to the question,

$(x + 122)/17 = (x + 210)/25$

$\Rightarrow 25x + 3050 = 17x + 3570 \Rightarrow 8x = 520 \Rightarrow x = 520/8 = 65$ metres

⇒ Speed of the train = (65 + 122)/17 = 187/17 metre/second = 11 m/second ⇒11* (18/5) = 39.6 kmph

Q.20) A train travelling with uniform speed crosses two bridges of lengths 300 m and 240 m in 21 seconds and 18 seconds respectively. The speed of the train is:

(A) 72 km/hr

(B)68 km/hr

(C) 65 km/hr

(D)60 km/hr

Ans: A

Solution: Let the length of the train be x

Speed of train

$(x + 300)/21 = (x + 240)18$

$\Rightarrow 7x + 1680 = 6x + 1800$

$\Rightarrow x = 120$

$\Rightarrow$ Speed of train $= (X + 300)/21 = 420/21 = 20$ m/sec

$\Rightarrow 20 * (18/5) = 72$ kmph

Q.21) A train running at 7/11 of its own speed reached a place in 22 hours. How much time could be saved if the train would run at its own speed?

(A) 14 hours

(B) 7 hours

(C) 8 hours

(D) 16 hours

Ans: C

Solution: Since the train runs at 7/11 of its own speed, the time it takes is 11/ 7 of its usual speed.

Let the usual time taken be 't' hours.

Then we can write, $(11/7) * t = 22$

$t = (22 * 7)/11 = 14$ hours

Hence, time saved $= 22 - 14 = 8$ hours

Q.22) Walking at three-fourth of his usual speed, a man covers a certain distance in 2 hours more than the time he takes to cover the distance at his usual speed. The time taken by him to cover the distance with his usual speed is

(A) 4.5 hours

(B) 5.5 hours

(C) 6 hours

(D) 5 hours

Ans: C

Solution: $4/3 \times$ usual time $-$ usual time $= 2$

$\Rightarrow 1/3$ usual time $= 2$

$\Rightarrow$ Usual time $= 2 \times 3 = 6$ hours

Q.23) A car travels from P to Q at a constant speed. If its speed were increased by 10 km/h, it would have been taken one hour lesser to cover the distance. It would have taken further 45 minutes lesser if the speed was further increased by 10 km/h. The distance between the two cities is

(A) 540 km
(B) 420 km
(C) 600 km
(D) 620 km

Ans: B

Solution: Product of Speeds = Distance x Diff. in Speeds / Diff. in time

Let initial speed be x km/hr and the distance between P and Q be D.
In the 1st scenario,
Initial speed = x, Increased speed = (x + 10),
difference in speeds = 10 kmph and difference in time = 1 hr
x(x+ 10) = Dx 10/1……..(1)
In the 2nd scenario,
Initial speed = x, Increased speed = (x + 20), difference in speeds = 20 kmph and difference in time = 1 hr+45 = 1+ 3/4 = 7/4 hrs.
x(x+ 20) = D x 20 x 4/7……..(2)
Dividing Eq. (2) by Eq.(1) , we get
(x + 20) /(x+ 10) = 20 x 4/7 x 1/10 = 8/7
140 + 7x = 80 + 8x
x = initial speed = 60 km/hr
Putting the value of x in eq. (i), we get
D =60 x 10 = 420 km.

Q.24) A car covers four successive 7 km distances at speeds of 10 km/hour, 20 km/hour, 30 km/hour and 60 km/hour respectively. Its average speed over this distance is

(A) 30 km/hour
(B) 20 km/hour
(C) 60 km/hour
(D) 40 km/hour

Ans: B

Solution: Total distance = 7 × 4 = 28 km.

⇒ Total time =[7/10 + 7/20 + 7/30 + 7/60] = 84/60 hours = 7/5 hours
⇒ Average speed = Total distance/Total time = 28/(7/5) = 20 kmph

Q.25) A car moving in the morning fog passes a man walking at 4 km/h. in the same direction. The man can see the car for 3 minutes and visibility is upto a distance of 130 m. The speed of the car is:

(A) 38/5 km. per hour
(B) 33/5 km. per hour
(C) 7 km. per hour
(D) 5 km. per hour

Ans: B

Solution: Speed of car = x kmph.

⇒ Relative speed = $(x - 4)$ kmph.
⇒ Time = 3 minutes = 3/ 60 hour = 1/20 hour
⇒ Distance = 130 metre = 130/1000 km. = 13/100 km.
⇒ Relative speed = Distance/Time
⇒ x-4 = (13/100) * 20
⇒ $5x - 20 = 13 \Rightarrow x = 33/5$ kmph.

Q.26) A boy rides his bicycle 10km at an average speed of 12 km/hr and again travels 12 km at an average speed of 10 km/hr. His average speed for the entire trip is approximately:

(A) 10.4 km/hr
(B) 10.8 km/hr
(C) 11.0 km/hr
(D) 12.2 km/hr

Ans: B

Solution: Total distance = 10 + 12 = 22 km

⇒ Total time = 10/12 + 12/10 = 244/120 hours
⇒ Required average speed = Total distance/Total time = 22/(244/120) = 10.8 km/hr.

Q.27) A train moves with a speed of 30 kmph for 12 minutes and for next 8 minutes at a speed of 45 kmph. Find the average speed of the train:

(A) 37.5 kmph
(B) 36 kmph
(C) 48 kmph
(D) 30 kmph

Ans: B

Solution:

Average speed = Total distance/time taken = [30 *(12/60) + 45*(8/60)] / (12/60) + (8/60)

Average speed = 12 × 3 = 36 kmph

Q.28) A constant distance from Chennai to Bangalore is covered by Express train at 100 km/hr. If it returns to the same distance at 80 km/hr, then the average speed during the whole journey is

(A) 90.20 km/hr
(B) 88.78 km/hr
(C) 88.98 km/hr
(D) 88.89 km/hr

Ans: D

Solution: If same distance are covered at two different speed of x and y kmph,
the average speed of journey $=2xy/x + y = (2*100*80)/(100+80) = 88.89$ kmph

Q.29) One third of a certain journey is covered at the rate of 25 km/hour, one-fourth at the rate of 30 km/hour and the rest at 50 km/hour. The average speed for the whole journey is

(A) 35 km/hour
(B) 100/3 km/hour
(C) 30 km/hour
(D) 445/12 km/hour

Ans: B

Solution: Let the total distance be x km.
Total time = $(x/3)/25 + (x/4)/30 + (5x/12)/50 = (x/75) + (x/120) + (x/120) = 3x/100$ hours
⇒ Average speed = Total distance/Time taken = $x/(3x/100) = 100/3$ kmph

Q.30) When Alisha goes by car at 50 kmph, she reaches her office 5 minutes late. But when she takes her motorbike, she reaches 3 minutes early. If her office is 25 kms away, what is the approximate average speed at which she rides her motorbike?

(A) 68 kmph
(B) 62 kmph
(C) 58 kmph
(D) 52 kmph

Ans: A

Solution: Difference of time = 5 + 3 = 8 minutes = 8/60 hour = 2/15 hour
If the speed of motorbike be 'x' kmph, then
$(25/50) - (25/x) = 2/15$….. By solving this
We get $x = 750/11 = 68.18$ kmph » 68 kmph

Q.31) Durga walks 5 km from her home to school in 60 minutes, then bicycles back to home along the same route at 15 km per hour. Her sister Smriti makes the same round trip, but does so at half of Durga's average speed. How much time does Smriti spend on her round trip?

(A) 120 minutes
(B) 40 minutes
(C) 160 minutes
(D) 80 minutes

Ans: C

Solution: Durga's average speed =(2x5x15)/20 kmph = 15/2 kmph

Distance of School = 5 km.

Required time = 2 * [5/(15/4)] hours = 8/3 hours = (8/3)x 60 minutes

Required time = 160 minutes

Q.32) To cover a distance of 216 km in 3.2 hours, what should be the average speed of the car in metre/second?

(A) 67.5 metre/second
(B) 33.75 metre/second
(C) 37.5 metre/second
(D) 18.75 metre/second

Ans: D

Solution: Required speed of car= Distance/Time = 216/3.2 kmph.

= (216/3.2) * 5/18 m./sec.

= 18.75 m./sec.

Q.33) In covering a certain distance, the speed of A and B are in the ratio of 3 : 4. A takes 30 minutes more than B to reach the destination. The time taken by A to reach the destination is:

(A) 1 hour
(B) 3/2 hours
(C) 2 hours
(D) 5/2 hours

Ans: C

Solution: Let the distance of destination be D km

Let the speed of A = 3x km/hr, then speed of B = 4x km/hr

According to question,

(D/3x) – (D/4x) = 30 min = ½ hr

D/12x = 1/2

D/3x = 4/2 = 2 hours

Q.34) The ratio of length of two trains is 5 : 3 and the ratio of their speed is 6 : 5. The ratio of time taken by them to cross a pole is

(A) 5 : 6

(B) 11 : 8

(C) 25 : 18

(D) 27 : 16

Ans: C

Solution: Required ratio = 5/6 : 3/5 = (30*5)/6 : (30*3)/5 =25:18

Q.35) A truck covers a distance of 550 metres in 1 minute whereas a bus covers a distance of 33 kms in 45 minutes. The ratio of their speed is:

(A) 4 : 3

(C) 3 : 5

(C) 3 : 4

(D) 50 : 3

Ans: C

Solution: Speed of truck = 550m/minute

Speed of bus = 33000/45 m/minute or 2200/3 m/minute

Required ratio = 550 : 2200/3 = 3 : 4

Q.36) A cyclist, after cycling a distance of 70 km on the second day, finds that the ratio of distance covered by him on the first two days is 4 : 5. If he travels a distance of 42 km. on the third day, then the ratio of distance travelled on the third day and the first day is:

(A) 4 : 3

(B) 3 : 2

(C) 3 : 4

(D) 2 : 3

Ans: C

Solution: Distance covered on the first day = (4/5) * 70 = 56 km

Required ratio = 42 : 56 = 3 : 4

Q.37) It takes eight hours for a 600 km journey, if 120 km is done by train and the rest by car. It takes 20 minutes more, if 200 km is done by train and the rest by car. The ratio of the speed of the train to that of the car is:

(A) 3 : 5
(B) 3 : 4
(C) 4 : 3
(D) 4 : 5

Ans: B

Solution: Let the speed of train be x kmph. and the speed of car be y kmph.

Time = Distance/Speed

According to the question,

$(120/x) + (480/y) = 8 \Rightarrow (15/x) + (60/y) = 1$…….(1)

$(200/x) + (400/y) = 25/3 \Rightarrow ((8/x) + (16/y) = 1/3$…….(2)

From equations (1) and (2),

$(24/x) + (48/y) = (15/x) + (60/y)$

$9/x = 12/y$

$x/y = 9/12 = ¾ = 3 : 4$

Q.38) The speeds of three cars are in the ratio of 1 : 3 : 5. The ratio among the time taken by these cars to travel the same distance is

(A) 3 : 5 : 15
(B) 15 : 3 : 5
(C) 15 : 5 : 3
(D) 5 : 3 : 1

Ans: C

Solution: Speed $\propto$ 1/Time

Required ratio of time = 1 : 1/3 : 1/5 = 15 : (1/3)*15 : (1/5)*15 = 15 : 5 : 3

Q.39) A thief is noticed by a policeman from a distance of 200m. The thief starts running and the policeman chases him. The thief and the policeman run at the rate of 10 km/hr and 11 km/hr respectively. What is the distance between them after 6 minutes?

(A) 100 m
(B) 190 m
(C) 200 m
(D) 150 m

Ans: A

Solution: Relative speed of police = 11 – 10 = 1 kmph =5/18 m / sec

Distance decreased in 6 minutes = (5/18) × 6×60 = 100 m

Distance remained between them = 200–100 = 100 m

Q.40) A bus moving at a speed of 45 km/hr overtakes a truck 150 metres ahead going in the same direction in 30 seconds. The speed of the truck is

(A) 27 km/hr
(B) 24 km/hr
(C) 25 km/hr
(D) 28 km/hr

Ans: A

Solution: Let the speed of the truck be x kmph

Relative speed of the bus = 45 - x kmph
Time = Distance/Relative speed
30/(60*60) = (150/1000)/(45-x)
1/120 = 15/[100 (45-x)]
(45 – x) = 18 ➔x = 45 – 18 = 27 kmph

Q.41) A boy started from his house by bicycle at 10 a.m. at a speed of 12 km per hour. His elder brother started after 1 hr 15 mins by scooter along the same path and caught him at 1.30 p.m. The speed of the scooter will be (in km/hr)

(A) 4.5
(B) 36
(C) 56/3
(D) 9

Ans: C

Solution: Let the speed of Scooter be '*x*'

Distance covered by cycling in $3\frac{1}{2}$ hours = Distance covered by scooter in $2\frac{1}{4}$ hours
12 * (7/2) =x * (9/4)
x = 56/3 kmph

Q.42) A thief steals a car at 1.30 p.m. and drives it off at 40 km/hr. The theft is discovered at 2 p.m. and the owner sets off in another car at 50 km/hr. He will overtake the thief at

(A) 5 p.m.
(B) 4 p.m.
(C) 4.30 p.m.
(D) 6 p.m.

Ans: B

Solution: Distance covered by the thief in half an hour = (1/2) * 40 = 20 km

Relative speed of car owner = 50 – 40 = 10 km

Required time = Difference of distance/Relative speed = 20/10 = 2 hours.. so at 4p.m.

Q.43) If a man walks 20 km at 5 km/hr, he will be late by 40 minutes. If he walks at 8 km/hr, how early from the fixed time will he reach?

(A) 15 minutes
(B) 25 minutes
(C) 50 minutes
(D) 90 minutes

Ans:

Solution: Time taken to cover 20 km at the speed of 5km/hr = 4 hours.

Fixed time = 4 hours – 40 minutes = 3 hour 20 minutes

Time taken to cover 20 km at the speed of 8 km/hr = 20/8 = 2 hours 30 minutes

Required time = 3 hours 20minutes – 2 hours 30 minutes =50 minutes

Q.44) If a man reduces his speed to 2/3, he takes 1 hour more in walking a certain distance. The time (in hours) to cover the distance with his normal speed is:

(A) 2
(B) 1
(C) 3
(D) 1.5

Ans: A

Solution: Since man walks at 2/3 of usual speed, time taken wil be 3/2 of usual time.

3/2 of usual time = usual time + 1 hour.

[(3/2)-1] of usual time = 1

usual time = 2 hours.

Q.45) A boy is late by 9 minutes if he walks to school at a speed of 4 km/hour. If he walks at the rate of 5 km/hour, he arrives 9 minutes early. The distance to his school is

(A) 9 km
(B) 5 km
(C) 4 km
(D) 6 km

Ans: D

Solution: Let the required distance be '*x*' km.

According to the question,

$x/4 - x/5 = 18/60$ = 6 km

x= 6 km

Q.46) Shri X goes to his office by scooter at a speed of 30km/h and reaches 6 minutes earlier. If he goes at a speed of 24 km/h, he reaches 5 minutes late. The distance of his office is

(A) 20 km
(B) 21 km
(C) 22 km
(D) 24 km

Ans: C

Solution: Let the distance of office be '*x*' km.

$x/24 - x/30 = 11/60$

$x = 22$ km.

Q.47) In a one-kilometre race A, B and C are the three participants. A can give B a start of 50 m. and C a start of 69 m. The start, which B can allow C is

(A) 17 m.
(B) 20 m.
(C) 19 m.
(D) 18 m.

Ans: B

Solution: Let the time taken to complete the race by A,B, and C be *x* minutes.

Speed of A = 1000/*x*, B =950/x, C = 931/x

Now, time taken to complete the race by

B = 1000/ (950/x)= 1000x/950 and distance travelled by C in 1000x/950 min

=(1000x/950) * (931/x) = 980 m. B can allow C = 1000 – 980 = 20 m

Q.48) A jeep is chasing a car which is 5km ahead. Their respective speed are 90 km/hr and 75 km/hr. After how many minutes will the jeep catch the car?

(A) 18 min.
(B) 20 min.
(C) 24 min.
(D) 25 min.

Ans: B

Solution: Relative speed = 95 – 75 = 15 kmph

Required time = Distance/Relative speed = 5/15 hours = (5/15) * 60 minutes = 20 minutes

Q.49) Rubi goes to a multiplex at the speed of 3 km/hr to see a movie and reaches 5 minutes late. If she travels at the speed of 4 km/hr she reaches 5 minutes early. Then the distance of the multiplex from her starting point is

(A) 2 km.
(B) 5 km.
(C) 2 metre
(D) 5 metre

Ans: A

Solution: Distance between starting point and multiplex = *x* metre

Time = Distance/Speed

According to the question,

x/3 – x/4 = (5+5/6= 10/6 = 5/3

x = 2 km.

Q.50) A constable is 114 metres behind a thief. The constable runs 21 metres and the thief runs 15 metres in a minute. In what time will the constable catch the thief?

(A) 19 minutes
(B) 18 minutes
(C) 17 minutes
(D) 16 minutes

Ans: A

Solution: The gap of 114 metre will be filled at relative speed.

Required time= 114/ (21-15) = 114/6 = 19 min