

Races and Games Question and Answer

Question 1.

A is $1\frac{3}{5}$ times quicker than B. If A gives B a Start of 75 meters, Find the length of racecourse so that both of them reach the winning post at the same time.

- (a) 100 m
- (b) 150 m
- (c) 200 m
- (d) 180 m

Question 2.

In a game of Snooker, A can Give B 16 Points in 80 and A can Give C 15 point in 90. How many points can C give B in a game of 50?

- (a) 10 Points
- (b) 12 Points
- (c) 5 Points
- (d) 2 Points

Question 3.

P can run 100m in 20 second and Q in 25 seconds. P beats Q by

- (a) 10 m
- (b) 20 m
- (c) 25 m
- (d) 12 m

Question 4.

In a 2 Km race, P can give Q 200 m and R 560 m. In the same race, Q can give R

- (a) 400 m
- (b) 300 m
- (c) 350 m
- (d) 500 M

Question 5.

A runs 1.5 Times as fast as B can. If A gives B a start of 50 m, how far must the winning post be in order that A and B reach at the same time

- (a) 150 m
- (b) 120 m
- (c) 125 m
- (d) 180 m

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Question 6.

P and Q run a Kilometers and P win by 1 minutes. P and R run a kilometre and P wins by 375 m. Q and R run a kilometre and Q wins By 30 Seconds. Find the time taken by each runner to run a kilometre. (a) 150 sec, 210 sec, 240sec

- (b) 120 sec, 160 sec, 200sec
- (c) 100 sec, 160 sec, 90sec
- (d) 140 sec, 200 sec, 230sec

Question 7.

A can give B 25 point, A can give C 40 points and B can give C 20 Points. How many points make the game?

- (a) 120
- (b) 100
- (c) 150
- (d) 80

Question 8.

At a game of billiard, A can give B 12 points in a game of 40 and A can give C 10 Points in game of 50. How many points can C and B in a game of 80?

- (a) 10
- (b) 20
- (c) 12
- (d) 18

Question 9.

A can run 1 km in 5 minutes 48 seconds and B in 6 minutes. How many metres start can A give B in 1 km race so that the race may end in a dead heat?

Question 10.

A and B run a km race A wins by 1 minute. A and C run a km race and A wins by 375 metres. B and C run a km race and B win By 30 seconds. Find the time that C takes to run a km race.

Question 11.

In a race of 800 m, A can beat B by 74 m and in a race of 600 m, B beat C by 50 m. By how many metres will A beat C in a race of 500 m?

Question 12.

In a game of billiards, A can give B 10 points in 60 and he can give C 15 in 60. How many points can B give C in a game of 90?

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Question 13.

A can give B 40 points, A can give C 64 points, and B can give C 30 points. How many points to make the game?

Question 14.

Two men A and B walk around a circle 1500 metres in circumference. A walks at the rate of 140 metres, and B at the rate 80 metres per minute. If they start from the same point, and walk in the same direction, when will they be together again?

Question 15.

Two men, A and B run a 10 km race on a course 400 m round. If their rates are 5: 4, how often does the winner pass the other?

Question 16.

Three girls Seema, Kiran and Nitu walk around a circle 3 km in circumference at the rates of 200, 150 and 125 metres per minute respectively. If they all start together and walk in the same direction, when will they first be together again?

Question 17.

A and B start from the same point and travel in the same direction around a circular track 3 km in circumference, If their speed is 200 and 150 metres a minute, when will they first together again at the starting point?

- (a) 40 min
- (b) 55 min
- (c) 1 hour
- (d) 45 min

Question 18.

Two men, A and B run a 500 m race, A having 140 m start their speeds are 3 :4. Then, A wins By:

- (a) 10 m
- (b) 20 m
- (c) 40 m
- (d) 60 m

Question 19.

In a race of 200 metres, A can give a start of 10 metres to A C give a start of 20 metres to B. The start that C can give to A, in the same race is

- (a) 30m
- (b) 29 m
- (c) 27 m
- (d) 25 m

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Question 20.

In a race of 300 metres A rates B by 15 metres or 5 seconds, How much time A take to complete the race?

- (a) 105 sec.
- (b) 100 sec.
- (c) 95 sec.
- (d) 90 sec.

Solutions:

Ans 1: 200 m

Let the Length of racecourse be l m,

In a time in which A covers l m, B covers $(l - 75)$ m.

Let speed of B be x . Speed of A = $\frac{8}{5}x$ As time is same for both we Have:

$$\frac{l}{\frac{8}{5}x} = \frac{l - 75}{x} \text{ or } \frac{l}{l - 75} = \frac{8}{5}$$

$$l = \frac{8}{3} \times 75 = 200m$$

Ans 2: 2 Points

When A Score 80 point B score 64 point

When A score 90 point B scores $\frac{64}{80} \times 90 \text{ Point} = 72 \text{ point}$

i.e. when C scores 75 point B scores 72 point.

When C scores 50 point B scores $\frac{72}{75} \times 50 \text{ point} = 48 \text{ point}$.

Hence C give B 2 point in a game of 50.

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Ans 3: 20 m

$$\text{In 20 second Q run} = \frac{100}{25} \times 20m$$

Ans 4: 400 m

When Q run (2000 – 200)m, R runs(2000 – 560)m.

Ans 5: 150 m

$$\frac{d - 50}{8} = \frac{d}{1.5 s}$$

Ans 6: 150 sec, 210 sec, 240sec

Let the speed of P, A and R be p, q and $r \text{ ms}^{-1}$ Respectively.

$$\frac{1000}{p} + 60 = \frac{1000}{q};$$

$$\frac{1000}{p} = \frac{1000 - 375}{r};$$

$$\frac{1000}{q} + 30 = \frac{1000}{r}$$

Ans 7: 100

Let the game be of x points.

When A scores x points, B scores $X - 25$ points, and C scores $X - 40$ Points

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Ans 8: 10

When A scores 40 points, B scores (40 – 12) points.

When A scores 50 points, C scores (50 – 10) points.

Ans: 9

A can give B (6 minutes - 5 minutes 48 seconds) or 12 seconds start. Now we must find the distance B can run in 12 seconds.

The distance run by B in 6 minutes = 1000 m

∴ The distance run by B in 12 seconds = $1000 \times 12 / 6 \times 60 = 100/3 = 33 \frac{1}{3}$ m

∴ A can give B 33 $\frac{1}{3}$ metres' Start.

Ans: 10

A beats B by 1 minute (60 seconds) and B beats C by 30 Seconds

∴ A beats C by (60 + 30) or 90 seconds

But A beats C by 375 m

∴ But A runs C by 375 m.

∴ C runs 1000 m in $90/375 \times 1000 = 240$ seconds = 4 minutes.

Ans: 11

While B runs 726 m, A runs 800 m. While C runs 550 m, B runs 600 m.

∴ While B runs 726m, C runs $550/600 \times 726 = 665.5$ m.

In a race of 800 m, A gives (800- 665.5) i.e. 134.5 m start to C, so in a race of 500 m A gives $134.5/800 \times 500$ m start to C i.e. 84.06 m start to C.

Ans: 12

A scores 60 while B scores 50, and C scores 45.

∴ B scores 90 while C scores $45/50 \times 90 = 81$

Hence, in a game of 90, B can give C (90-81) or 9 points .Let x points make the game, so that, according to the question,

if A has x points, then B has (x-40) points.

B has x points, then C has (x- 30) Points.

C has (x -64) points , then A has x points

∴ By chain rule

$$x \times (x-64) = (x-40) (x-30)x$$

$$\Rightarrow x^2 - 64x = x^2 - 70x + 1200$$

$$\Rightarrow x = 2000$$

Hence, 200 points make the game

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Ans: 13

Let x points make the game, so that, according to the question,
if A has x points, then B has $(x-40)$ points.

B has x points, then C has $(x-30)$ Points.

C has $(x-64)$ points, then A has x points

.. By chain rule

$$x \times (x-64) = (x-40)(x-30)$$

$$\Rightarrow x^2 - 64x = x^2 - 70x + 1200$$

$$\Rightarrow x = 2000$$

Hence, 2000 points make the game

Ans: 14

A and B will be together again for the first time when A has gained one complete round on B.

Now A gains $(140-80)$ or 60 metres on B in 1 minute

.. A gains 1500 metres in $1500/60$ or 25 minutes.

Ans 15

Since the rates are 5 :4, A runs 5 rounds while B runs 4 rounds

.. A passes B each time that A has runs 5 rounds i.e. $5 \times \frac{2}{6}$ or 3 kms

.. (400m = $\frac{2}{5}$ km)

Now 2 kms is contained 5 times in 10 kms

.. A passes B 5 times.

Ans 16

Seema is quickest girl one complete round on Neetu, the slowest girl, in $3000/200-125$ or 40 minutes.

Seema gains one complete round on Kiran, the next slowest girl in $3000/200-150$ or 40 minutes.

Thus, Seema and Nitu are together after every 40 minutes, and Seema and Kiran are together after 60 minutes.

Hence, Seema, Kiran and Nitu will be together in the time which is LCM of 40 and 60. The LCM of 40 and 60 is 120 minutes or 2 hours.

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Ans 17: 1 hour

$$\text{Time Taken by A in one round} = \frac{3000}{200} = 15 \text{ min}$$

$$\text{Time Taken by B in one round} = \frac{3000}{150} = 20 \text{ min.}$$

L.C.m of 15 min and 20 min = 60 min = 1 hr.

Hence, they will meet first together at the starting point after 1 hour.

Ans 18: 20 m

Here, greatest have to cover a distance of (500-140) = 360 m to reach the winning point while B 500 m Now, A covers 3m while B covers 4 m

∴ A covers 360 m while B covers $\frac{4}{3} \times 360 = 480$ m

Hence, B will be (500- 480) = 20 m behind the winning post.

∴ A wins by 20 m.

Ans 19: 29 m

B covers 200 m while A 190 m

B covers 180 m while A $\frac{190}{200} \times 180 = 171$ m

Hence, C covers 200 m while A = 171 m

So, C can give to A (200 - 171) = 29 m Start.

Ans 20: 95 sec.

From the question it is clear that speed of B = $\frac{15}{5} = 3$ m/s

the time taken by B to cover 300 m = $\frac{300}{3} = 100$ sec.

Hence, Time taken by A to complete the race = $100-5 = 95$ sec.