
FACE
Prep

Time, Speed and Distance

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Basics of Time, Speed and Distance Drill 1

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Question

Assume that you are participating in a race and driving at an average speed of 180 kmph.
What will be the distance covered by you in:

i. 2 hours? : _____

ii. 5 hours? : _____

iii. 35 minutes? : _____

Question

For the same data, what will be the time taken by you to cover:

540 km : _____

60 km : _____

15 km : _____

800 m : _____

Question

Walking at $(5/7)^{th}$ of your usual speed, you will reach the market 16 minutes late. What is the usual time taken by you to reach the market?

_____ min

Question

If you ride your scooter at a speed of 20 kmph from your house, you will reach your college at 9.05 a.m. If you ride at 30 kmph, then you will reach at 8.55 a.m. Find the distance between your house and college _____ km

Question

If you travel 210 km from town A to town B at a speed of 30 kmph and from there to town C at a speed of 70 kmph for another 140 km, then what is your average speed during the entire journey?

Average speed = _____ kmph

Question

If you travel from your house to office at the speed of 30 kmph and return home at the speed of 70 kmph, then what is your average speed for the entire journey?

Average speed is _____ kmph

Relative Speed
Drill 2

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Relative Speed

Question

You are in need of Rs.10,000 and decide to borrow it from your friend who lives 120 km away from your place.

Case 1: You decide to go to his place in your car at an average speed of 40 kmph to collect it. How long will you take to meet him? _____ hrs

Case 2: Both of you are travelling towards each other. Your friend is travelling in his bike at a speed of 20 kmph and you are travelling at a speed of 40 kmph.

i. What will be the distance between you and your friend after an hour? _____ km

ii. After how much time will you meet your friend? _____ hrs

Question

Case 3: Your friend is already on his way to his office (which is in the opposite direction), travelling at a speed of 20 kmph. You decide to chase him down, travelling at a speed of 40 kmph.

i. What will be the distance between you and your friend after an hour? _____ km

ii. After how much time will you meet your friend? _____ hrs

Problems Based on Trains
Drill 3

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Question

What is the time taken by a 90 m long train travelling at a speed of 18 kmph to cross a bridge of length 270 m?

The time taken to cross the bridge is _____

Question

A train 90 m long is travelling at a speed of 40 kmph. A man is running at a speed of 5 kmph in a direction opposite to the motion of the train. What would be the time taken by the train to cross the man?

Time taken to cross the man is _____

Problems Based on Boats and Streams Drill 4

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Question

A boat can travel at a speed of 13 kmph in still water. If the speed of the stream is 4 kmph, find the time taken by the boat to travel 68 km downstream.

Time taken to cover 68 km downstream = _____ hrs

Question

A motorboat travels 40 km downstream in 5 hours and 30 km upstream in 6 hours. Find the speed of the stream (in kmph).

Speed of the stream SS = _____ kmph

Problems based on Races
Drill 5

FACE Prep

Question

In a 100 m race, A covered a distance in 36 seconds and B in 45 seconds. By what distance did A win the race?

Hence, A beats B by _____ m.

Question

In a 100 m race, A can beat B by 25 m and B can beat C by 4 m. In the same race, by how many meters can A beat C?

Hence, A beats C by _____ m.

Question

Two bicycle riders ride in opposite directions around a circular track, starting at the same time from same point. Cyclist A rides at a speed of 3 kmph and cyclist B rides at a speed of 1 kmph. If the track has a diameter of 4 km, after how much time will the two cyclists meet?

Time taken for them to meet each other =_____ hrs

Concept Review Questions

Question

Ram takes 3 hours more than Karthick, who drives his car 5 kmph faster than Ram, to cover a distance of 180 km. What is the speed of Ram?

A) 8 kmph

B) 10 kmph

C) 15 kmph

D) 20 kmph

Question

Two identical trains A and B running in opposite directions with equal speeds take 2 minutes to cross each other completely. The number of bogies of A is increased from 12 to 16. How much more time would they now require to cross each other?

A) 40 s

B) 50 s

C) 60 s

D) 20 s

Question

Starting from my office, I reach the house 20 minutes late if I walk at 3 kmph. Instead, if I walk at 4 kmph, I reach the house 15 minutes early. How far is my house from my office?

A) 4 km

B) 5 km

C) 7 km

D) 6 km

Question

A man can row a boat at a speed of 6 kmph in still water. If it takes him twice as long to row up as to row down the river, the rate of current in the stream would be

A) 4 kmph

B) 2 kmph

C) 3 kmph

D) 2.5 kmph

Question

Prem and Shyam travel the same distance at the speeds of 10 kmph and 15 kmph respectively. If Prem takes 30 minutes longer than Shyam, then the distance travelled is

A) 15 km

B) 2 km

C) 10 km

D) 30 km

Question

Walking at $4/7^{th}$ of his usual speed, Ram gets late by 15 minutes. Find the time he would have taken walking at his usual speed.

A) 25 min

B) 20 min

C) 30 min

D) 24 min

Question

In a 200 m race, A gives B a head start of 25 m and wins by 10 s. If A gives B a head start of 45 m, the race ends in a dead heat. What will be the time taken by A to complete the race?

A) 100 s

B) 77.5 s

C) 86 s

D) 155 s

Question

Arjun is standing on an old building and there is a railway track beside on which a train travels at a speed of 72 kmph. When the train passes by the building, Arjun tries to jump inside the train. He somehow manages to enter the train through the last door of the last bogie. After jumping in, he runs towards the other end of the train at a speed of 36 kmph. When he reaches a distance of 300 m from the building, the building exploded. After how many seconds since Arjun's jump did the building explode?

A) 30 s

B) 10 s

C) 15 s

D) 20 s

Question

Two stations A and B are 110 km apart on a straight line. One train starts from A at 7 a.m. and travels toward B at a speed of 20 kmph. Another train starts from B at 8 a.m. and travels toward A at a speed of 25 kmph. At what time will they meet?

A) 9 a.m.

B) 10 a.m.

C) 11 a.m.

D) None of these

Question

Two boats traveling at 5 kmph and 10 kmph head towards each other. They begin at a distance of 20 km from each other. How far apart are they (in km) one minute before they collide?

A) 1/2

B) 1/6

C) 1/4

D) 1/3

Question

A train which is travelling at a constant speed crosses a lamp post in 9 seconds and it takes 13.5 seconds to cross a platform 99 m long. Find the length of the train.

A) 99 m

B) 198 m

C) 135 m

D) 12 m

Question

A and B walk around a circular track. They start at 10 a.m. from the same point in the opposite directions. A and B walk at a speed of 2 rounds per hour and 3 rounds per hour respectively. How many times shall they cross each other before 11.30 a.m.?

A) 5

B) 6

C) 7

D) 8

Question

In a 300 m race, Ani beats Bini by 22.5 m or 6 seconds. What is the time taken by Bini to complete the race?

A) 86 s

B) 80 s

C) 76 s

D) None of these

Question

Filsha travelling at the speed of 100 kmph reaches her destination in 80 minutes. If she travels at the speed of 125 kmph, in how many minutes will she reach her destination?

A) 64 minutes

B) 66 minutes

C) 60 minutes

D) 65 minutes

Question

Kanyakumari Express is a daily train from Kashmir to Kanyakumari. The train leaves Kashmir at 11 a.m. everyday and reaches Kanyakumari after exactly 10 days at 11 a.m. Kashmir Express is a similar daily train which leaves Kanyakumari at 11 a.m. everyday and reaches Kashmir after exactly 10 days at 11 a.m. Let us say, you are on the train which is leaving Kashmir on 20th April. When you reach Kanyakumari on 30th April, how many Kashmir Express trains would have crossed you from the opposite direction?

A) 19

B) 10

C) 9

D) None of the above

Practice Exercise

Question

Rahul can cover a distance of 600 km in 5 hours. If his speed is increased by 30 kmph, how much time will he take to cover a distance of 750 km?

A) 6.25 hrs

B) 5 hrs

C) 6 hrs

D) 7.5 hrs

Question

A student reaches his school 30 minutes late by walking at 3 kmph. The next day he doubles his speed and reaches on time. Find the distance from his house to his school in km.

A) 2.5

B) 3.5

C) 3

D) 5

Question

Bala travelled a certain distance at 15 kmph and returned back at 30 kmph using the same route. Find the average speed of Bala.

A) 10 kmph

B) 5 kmph

C) 20 kmph

D) 18 kmph

Question

In a circular race along a track of length of 4500 m, A and B start from the same point and at the same time with the speeds of 36 kmph and 54 kmph. After how many seconds will they meet for the first time if they are running in the same direction?

A) 900 s

B) 180 s

C) 250 s

D) 50 s

Question

In a race of 100 m, A beats B by 20 m or 5 seconds. Find the time taken by A to complete the race and the speed of B.

A) 4 s, 20 m/2

B) 20 s, 4 m/2

C) 20 s, 25 m/2

D) 25 s, 20 m/2

Question

How long will a train 250 m long travelling at a speed of 72 kmph take to cross a platform of length 150 m?

A) 20 s

B) 10 s

C) 5.55 s

D) Data Insufficient

Question

Find the length of a train running at 45 kmph which can cross a bridge of length 200 m in 30 seconds.

A) 375 m

B) 175 m

C) 130 m

D) None of these

Question

In a 750 m race, the ratio of speeds of Arun to Darani is 1:3. Arun has a head start of 250 m. Who wins the race and by what distance?

A) Arun, 200m.

B) Darani, 250m.

C) Arun, 250m.

D) Darani, 200m.

Question

Find the usual time taken by Rajeev to complete his journey if walking at 3/4th of his usual speed, he is 20 minutes late.

A) 50 min

B) 60 min

C) 80 min

D) 72 min

Question

A man rows 42 km with the stream in 7 hours and 60 km against the stream in 12 hours. What is the speed of the boat in still water?

A) 5.5 kmph

B) 9.5 kmph

C) 2.5 kmph

D) 7.5 kmph

Question

A man on tour travels the first 160 km at 60 kmph and the next 160 km at 80 kmph. The average speed for the first 320 km of the tour is:

A) 35.55 kmph

B) 71.11 kmph

C) 71 kmph

D) 68.5 kmph

Question

A train 200 m long takes 5 seconds to cross a man walking at 6 kmph in a direction opposite to that of the train. Find the speed of the train.

A) 138 kmph

B) 180 kmph

C) 150 kmph

D) None of these

Question

Two trains, each 150 m long, moving in opposite directions, cross each other in 6 seconds. If one is moving twice as fast as the other, then the speed of the faster train is:

A) 180 kmph

B) 120 kmph

C) 150 kmph

D) 136 kmph

Question

A runs 25% faster than B and is able to give him a start of 7 m to end a race in dead heat.

A) 10 m

B) 45 m

C) 35 m

D) 25 m

Question

A man can row upstream at 9 kmph and downstream at 14 kmph. The speed of the stream is:

A) 4.2 kmph

B) 5 kmph

C) 11.5 kmph

D) 2.5 kmph

Question

Two men starting from the same place walk at the rate of 6 kmph and 6.5 kmph respectively. What time will they take to be 7.5 km apart, if they walk in the same direction?

A) 4 hrs 15 min

B) 8 hrs 30 min

C) 15 hrs

D) 17 hrs

Question

Rahul travels at 20 kmph and reaches the office 4 minutes late. Next time, he goes at 25 kmph and reaches the office 2 minutes earlier than the scheduled time. What is the distance between his office and home?

A) 5 km

B) 15 km

C) 10 km

D) 20 km

Question

If a man walks at a speed of 4 kmph from his house, he is late to his office by 12 minutes. If he walks at 6 kmph, he will be early by 8 minutes. What is the distance from his house to his office?

A) 12 km

B) 10 km

C) 4 km

D) 8 km

Question

It takes 5 hours to sail from a point A to an island and return. The speed of the boat in still water is 16 kmph and speed of the stream is 8 kmph. At what distance from point A is the island located?

A) 14 km

B) 21 km

C) 35 km

D) 30 km

Question

A person in a car moving at a speed of 51 kmph covers a certain distance in 16 hours. How much time does another person travelling by a van at a speed of 68 kmph take to cover the same distance?

A) 6 hours

B) 12 hours

C) 8 hours

D) 7 hours

Question

The distance between Vijayawada and Chennai is 500 km. A train travels from Vijayawada to Chennai at 60 kmph and returns at 40 kmph to Vijayawada. What is its average speed for the entire journey (approximately)?

A) 48 kmph

B) 64 kmph

C) 72 kmph

D) 45 kmph

Question

Kamal fires a gun at 10:30 a.m. when Bala starts on his car towards Kamal. Kamal fires it second time after 10 minutes and 30 seconds but Bala hears the second shot ten minutes after hearing the first shot. What was Bala's speed in kmph, if the speed of sound in air is 330 m/s?

A) 19.8

B) 59.4

C) 58.6

D) 111.80

Question

Raj and Vinay travel the same distance at the speeds of 70 kmph and 120 kmph respectively. If Raj takes 30 minutes longer than Vinay, then the distance travelled is

A) 54 km

B) 84 km

C) 96 km

D) 102 km

Question

Two motorists Anil and Sunil are practising with two different sports cars; Ferrari and McLaren, on the circular racing track for the car racing tournament to be held next month. Both Anil and Sunil start from the same point on the circular track. Anil completes one round of the track in 1 minute and Sunil takes 2 minutes to complete a round. While Anil maintains his speed for all the rounds, Sunil halves his speed after the completion of each round. How many times will Anil and Sunil meet between 6th round and 9th round of Sunil (6th and 9th round is excluded)? Assume that Sunil's speed remains steady throughout each round and changes only after the completion of that round.

A) 260

B) 347

C) 382

D) None of these

Question

Two athletes cover the same distance at the rate of 10 kmph and 15 kmph respectively. Find the distance travelled when one takes 15 minutes longer than the other.

A) 750 km

B) 7.5 km

C) 7.5 m

D) 15 km

Question

The speed of a bus during the second hour of its journey is twice that in the first hour. Also, its speed during the third hour is two-third the sum of its speeds in the first two hours. Had the bus travelled for three hours at the speed of the first hour, it would have travelled 120 km less. Find the average speed of the bus for the first three hours.

A) 60 kmph

B) 70 kmph

C) 80 kmph

D) 100 kmph

Question

A skating champion moves along the circumference of a circle of radius 28 m in 44 seconds. How many seconds will it take her to move along the perimeter of a hexagon of side 48 m?

A) 90

B) 84

C) 68

D) 72

Question

Jay started cycling along the boundaries of a square field from corner point A. After half an hour he reached the corner point C, diagonally opposite to A. If his speed was 8 kmph, the area of the field in km^2 is

A) 64

B) 16

C) 9

D) 4

Question

If a man cycles at 10 kmph, he arrives at a certain place at 1 p.m. If he cycles at 15 kmph, he will arrive at the same place at 11 a.m. At what speed must he cycle to get there at noon?

A) 11 kmph

B) 12 kmph

C) 13 kmph

D) 14 kmph

Question

If Sita walks at 5 kmph, she misses her train by 10 minutes. If she walks at 7 kmph, she reaches the station 10 minutes early. How much distance does she walk to the station?

A) 5.8 km

B) 35.6 km

C) 10.6 km

D) 92 km

Self Assessment

Question

A person travels at a speed of 20 kmph to a certain place and returns at the speed of 30 kmph. What is his average speed?

A) 23.5 kmph

B) 24 kmph

C) 25 kmph

D) 28.5 kmph

Question

In a 400 m race, A gives B a head start of 50 m and wins by 20 seconds and if A gives a head start of 90 m, the race ends in a dead heat. What will be the time taken by A to complete the race?

A) 200 s

B) 7.5 s

C) 155 s

D) 86.5 s

Question

Rajesh is practising with his gun and keeps shooting at exact intervals of 34 minutes. Suresh comes in a bus to meet Rajesh and he hears the second shot 33 minutes after he hears the first shot. What is the speed of the bus (in kmph) if sound travels at 330 m/s?

A) 30

B) 33

C) 36

D) 42

Question

If Arun rides his scooter at a speed of 20 kmph, he reaches his office 5 minutes late. If he rides at 30 kmph, he reaches 5 minutes early. Find the distance between his home and office (in km).

A) 12

B) 25

C) 12.5

D) 10

Question

P and Q travel together from D to A and break their journey at M in between. Somewhere between D and M, P asks “How far have we travelled?” Q replies, “Half as far as the distance from here to M”. Somewhere between M and A, exactly 300 km from the point where P asked the first question, P asks, “How far have we to go?”. Q replies, “Half as far as the distance from M to here”. The distance between D and A is:

A) 250 km

B) 450 km

C) 350 km

D) 500 km

Question

A train which is 400 m long passing a bridge of length 550 m at a speed 36 kmph will cross a signal post on the bridge in:

A) 95 s

B) 55 s

C) 40 s

D) 50 s

Question

A bus crosses 19 electric poles in 10 seconds. If the distance between any two successive poles is 5 m, then what is the speed of the bus (in kmph)?

A) 32.4

B) 33.2

C) 35.2

D) 34.2

Question

Abdul takes six hours to walk to a certain place and ride back. However, he would have gained two and a half hours, had he ridden both ways. How long would he take to walk both ways?

A) 8.5 hrs

B) 4.25 hrs

C) 3.5 hrs

D) 6 hrs

Question

Mittu travels upstream at the speed of 8 kmph and returns to the same place by rowing downstream at the speed of 14 kmph. What is the speed of the stream?

A) 3 kmph

B) 11 kmph

C) 4 kmph

D) 7 kmph

Question

Two trains of length 300 m and 200 m travelling opposite to each other at the speed of 36 kmph and 72 kmph. What will be the time taken for the trains to cross each other?

A) 50/3 s

B) 50 s

C) 30 s

D) 10 s

THANK YOU

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