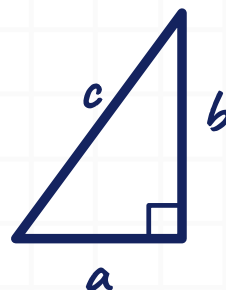
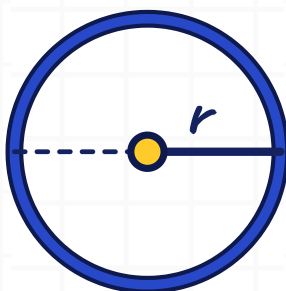


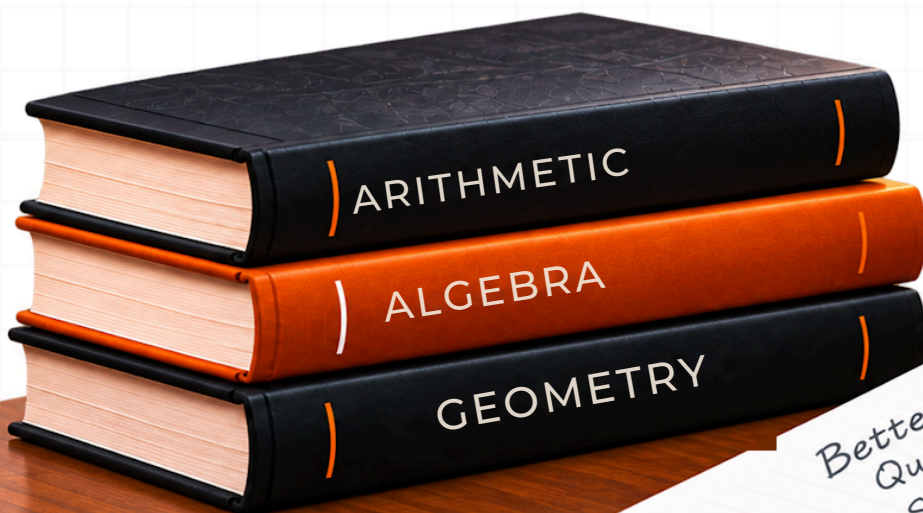
CAT PYQ

Time Speed & Distance

$$a^2 + b^2 = c^2$$



$$D = S \times T$$



Better
Questions
Stronger
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Brighter Future

Time Speed & Distance CAT PYQ



Common Admission Test - Indian Institutes of Management

83 Questions

Quantitative Aptitude

Years: 1990-2025

General Instructions

- (i) This collection contains **83 Quantitative Aptitude questions** classified under **Time Speed & Distance**, following the supplied CD PYQ sheet.
- (ii) **Coverage:** CAT 1990-2025. Questions are grouped by their source year and sitting, with continuous numbering from **1 to 83**.
- (iii) This collection has **70 multiple choice questions (MCQs)** and **13 Type In The Answer (TITA) questions**. Read every option before choosing the answer. Enter a response for questions marked "Type in the answer."
- (iv) All required shared passages and data sets for the selected questions are included. Blue range labels refer to the question numbers **in this collection**. Read the full passage, chart, table or conditions before answering.
- (v) Each question carries its original year or exam date, sitting where available, and source question number. References distinguish the two CAT 2003 sittings.
- (vi) Use this collection for practice. Follow the timing and marking scheme of the original sitting when attempting a timed exercise.
- (vii) Answer keys and solutions are not included. Passages and questions may continue onto the following page.

CAT 2025 Slot 1 - Questions 1-1

1. Shruti travels a distance of 224 km in four parts for a total travel time of 3 hours. Her speeds in these four parts follow an arithmetic progression, and the corresponding time taken to cover these four parts follow another arithmetic progression. If she travels at a speed of 960 meters per minute for 30 minutes to cover the first part, then the distance, in meters, she travels in the fourth part is

30 Nov 2025, Slot 1, Q48

(A) 76800

(B) 112000

(C) 96000

(D) 86400

CAT 2025 Slot 2 - Questions 2-2

2. Rita and Sneha can row a boat at 5 km/h and 6 km/h in still water, respectively. In a river flowing with a constant velocity, Sneha takes 48 minutes more to row 14 km upstream than to row the same distance downstream. If Rita starts from a certain location in the river, and returns downstream to the same location, taking a total of 100 minutes, then the total distance, in km, Rita will cover is

30 Nov 2025, Slot 2, Q55

Type in the answer.

CAT 2025 Slot 3 - Questions 3-4

3. Ankita walks from A to C through B, and runs back through the same route at a speed that is 40% more than her walking speed. She takes exactly 3 hours 30 minutes to walk from B to C as well as to run from B to A. The total time, in minutes, she would take to walk from A to B and run from B to C, is

30 Nov 2025, Slot 3, Q51

Type in the answer.

4. Rahul starts on his journey at 5 pm at a constant speed so that he reaches his destination at 11 pm the same day. However, on his way, he stops for 20 minutes, and after that, increases his speed by 3 km per hour to reach on time. If he had stopped for 10 minutes more, he would have had to increase his speed by 5 km per hour to reach on time. His initial speed, in km per hour, was

30 Nov 2025, Slot 3, Q53

(A) 12

(B) 15

(C) 18

(D) 20

CAT 2024 Slot 1 - Questions 5-5

5. Two places A and B are 45 kms apart and connected by a straight road. Anil goes from A to B while Sunil goes from B to A. Starting at the same time, they cross each other in exactly 1 hour 30 minutes. If Anil reaches B exactly 1 hour 15 minutes after Sunil reaches A, the speed of Anil, in km per hour, is

24 Nov 2024, Slot 1, Q63

(A) 18

(B) 16

(C) 14

(D) 12

CAT 2024 Slot 2 - Questions 6-6

6. A bus starts at 9 am and follows a fixed route every day. One day, it traveled at a constant speed of 60 km per hour and reached its destination 3.5 hours later than its scheduled arrival time. Next day, it traveled two-thirds of its route in one-third of its total scheduled travel time, and the remaining part of the route at 40 km per hour to reach just on time. The scheduled arrival time of the bus is

24 Nov 2024, Slot 2, Q60

(A) 7 : 30 pm

(B) 7 : 00 pm

(C) 9 : 00 pm

(D) 10 : 30 pm

CAT 2024 Slot 3 - Questions 7-7

7. A train travelled a certain distance at a uniform speed. Had the speed been 6 km per hour more, it would have needed 4 hours less. Had the speed been 6 km per hour less, it would have needed 6 hours more. The distance, in km, travelled by the train is

24 Nov 2024, Slot 3, Q57

(A) 720

(B) 800

(C) 780

(D) 640

8. The minor angle between the hours hand and minutes hand of a clock was observed at 8:48 am. The minimum duration, in minutes, after 8.48 am when this angle increases by 50% is

26 Nov 2023, Slot 1, Q53

- (A) $\frac{36}{11}$ (B) 2
(C) 4 (D) $\frac{24}{11}$

9. Brishti went on an 8-hour trip in a car. Before the trip, the car had travelled a total of x km till then, where x is a whole number and is palindromic, i.e., x remains unchanged when its digits are reversed. At the end of the trip, the car had travelled a total of 26862 km till then, this number again being palindromic. If Brishti never drove at more than 110 km/h, then the greatest possible average speed at which she drove during the trip, in km/h, was

26 Nov 2023, Slot 1, Q55

- (A) 110 (B) 90
(C) 100 (D) 80

10. Arvind travels from town A to town B, and Surbhi from town B to town A, both starting at the same time along the same route. After meeting each other, Arvind takes 6 hours to reach town B while Surbhi takes 24 hours to reach town A. If Arvind travelled at a speed of 54 km/h, then the distance, in km, between town A and town B is

26 Nov 2023, Slot 1, Q58

Type in the answer.

CAT 2023 Slot 2 - Questions 11-11

11. Ravi is driving at a speed of 40 km/h on a road. Vijay is 54 meters behind Ravi and driving in the same direction as Ravi. Ashok is driving along the same road from the opposite direction at a speed of 50 km/h and is 225 meters away from Ravi. The speed, in km/h, at which Vijay should drive so that all the three cross each other at the same time, is

26 Nov 2023, Slot 2, Q54

(A) 58.8

(B) 67.2

(C) 61.6

(D) 64.4

12. A boat takes 2 hours to travel downstream a river from port A to port B, and 3 hours to return to port A. Another boat takes a total of 6 hours to travel from port B to port A and return to port B. If the speeds of the boats and the river are constant, then the time, in hours, taken by the slower boat to travel from port A to port B is

26 Nov 2023, Slot 3, Q57

- (A) $12(\sqrt{5} - 2)$ (B) $3(3 + \sqrt{5})$
(C) $3(\sqrt{5} - 1)$ (D) $3(3 - \sqrt{5})$
-

CAT 2022 Slot 1 - Questions 13-13

13. Trains A and B start traveling at the same time towards each other with constant speeds from stations X and Y, respectively. Train A reaches station Y in 10 minutes while train B takes 9 minutes to reach station X after meeting train A. Then the total time taken, in minutes, by train B to travel from station Y to station X is

27 Nov 2022, Slot 1, Q49

- | | |
|--------|--------|
| (A) 6 | (B) 15 |
| (C) 10 | (D) 12 |
-

CAT 2022 Slot 2 - Questions 14-14

14. Two ships meet mid-ocean, and then, one ship goes south and the other ship goes west, both traveling at constant speeds. Two hours later, they are 60 km apart. If the speed of one of the ships is 6 km per hour more than the other one, then the speed, in km per hour, of the slower ship is

27 Nov 2022, Slot 2, Q52

(A) 20

(B) 12

(C) 18

(D) 24

CAT 2022 Slot 3 - Questions 15-17

15. Two cars travel from different locations at constant speeds. To meet each other after starting at the same time, they take 1.5 hours if they travel towards each other, but 10.5 hours if they travel in the same direction. If the speed of the slower car is 60 km/hr, then the distance traveled, in km, by the slower car when it meets the other car while traveling towards each other, is

27 Nov 2022, Slot 3, Q54

- (A) 100 (B) 90
(C) 120 (D) 150
-

16. Moody takes 30 seconds to finish riding an escalator if he walks on it at his normal speed in the same direction. He takes 20 seconds to finish riding the escalator if he walks at twice his normal speed in the same direction. If Moody decides to stand still on the escalator, then the time, in seconds, needed to finish riding the escalator is

27 Nov 2022, Slot 3, Q64

Type in the answer.

17. Two ships are approaching a port along straight routes at constant speeds. Initially, the two ships and the port formed an equilateral triangle with sides of length 24 km. When the slower ship travelled 8 km, the triangle formed by the new positions of the two ships and the port became right-angled. When the faster ship reaches the port, the distance, in km, between the other ship and the port will be

27 Nov 2022, Slot 3, Q65

- (A) 4 (B) 12
(C) 8 (D) 6
-

CAT 2021 Slot 1 - Questions 18-18

18. Two trains cross each other in 14 seconds when running in opposite directions along parallel tracks. The faster train is 160 m long and crosses a lamp post in 12 seconds. If the speed of the other train is 6 km/hr less than the faster one, its length, in m, is

28 Nov 2021, Slot 1, Q45

- | | |
|---------|---------|
| (A) 184 | (B) 192 |
| (C) 190 | (D) 180 |
-

CAT 2021 Slot 2 - Questions 19-19

19. Two trains A and B were moving in opposite directions, their speeds being in the ratio 5 : 3. The front end of A crossed the rear end of B 46 seconds after the front ends of the trains had crossed each other. It took another 69 seconds for the rear ends of the trains to cross each other. The ratio of length of train A to that of train B is

28 Nov 2021, Slot 2, Q50

(A) 3:2

(B) 5:3

(C) 2:3

(D) 2:1

CAT 2021 Slot 3 - Questions 20-20

20. Mira and Amal walk along a circular track, starting from the same point at the same time. If they walk in the same direction, then in 45 minutes, Amal completes exactly 3 more rounds than Mira. If they walk in opposite directions, then they meet for the first time exactly after 3 minutes. The number of rounds Mira walks in one hour is

28 Nov 2021, Slot 3, Q57

Type in the answer.

CAT 2020 Slot 1 - Questions 21-24

21. A straight road connects points A and B. Car 1 travels from A to B and Car 2 travels from B to A, both leaving at the same time. After meeting each other, they take 45 minutes and 20 minutes, respectively, to complete their journeys. If Car 1 travels at the speed of 60 km/hr, then the speed of Car 2, in km/hr, is

29 Nov 2020, Slot 1, Q61

- (A) 100 (B) 90
(C) 80 (D) 70

22. Leaving home at the same time, Amal reaches the office at 10:15 am if he travels at 8 km/hr, and at 9:40 am if he travels at 15 km/hr. Leaving home at 9:10 am, at what speed, in km/hr, must he travel so as to reach office exactly at 10 am?

29 Nov 2020, Slot 1, Q68

- (A) 13 (B) 12
(C) 14 (D) 11

23. A train travelled at one-thirds of its usual speed, and hence reached the destination 30 minutes after the scheduled time. On its return journey, the train initially travelled at its usual speed for 5 minutes but then stopped for 4 minutes for an emergency. The percentage by which the train must now increase its usual speed so as to reach the destination at the scheduled time, is nearest to

29 Nov 2020, Slot 1, Q69

- (A) 50 (B) 58
(C) 67 (D) 61

24. Two persons are walking beside a railway track at respective speeds of 2 and 4 km per hour in the same direction. A train came from behind them and crossed them in 90 and 100 seconds, respectively. The time, in seconds, taken by the train to cross an electric post is nearest to

29 Nov 2020, Slot 1, Q71

- (A) 87 (B) 82
(C) 78 (D) 75

CAT 2020 Slot 2 - Questions 25-28

25. The distance from B to C is thrice that from A to B. Two trains travel from A to C via B. The speed of train 2 is double that of train 1 while traveling from A to B and their speeds are interchanged while traveling from B to C. The ratio of the time taken by train 1 to that taken by train 2 in travelling from A to C is

29 Nov 2020, Slot 2, Q51

- (A) 5:7 (B) 4:1
(C) 1:4 (D) 7:5

26. In a car race, car A beats car B by 45 km. car B beats car C by 50 km. and car A beats car C by 90 km. The distance (in km) over which the race has been conducted is

29 Nov 2020, Slot 2, Q56

- (A) 475 (B) 450
(C) 500 (D) 550

27. A and B are two points on a straight line. Ram runs from A to B while Rahim runs from B to A. After crossing each other. Ram and Rahim reach their destination in one minute and four minutes, respectively. if they start at the same time, then the ratio of Ram's speed to Rahim's speed is

29 Nov 2020, Slot 2, Q63

- (A) $\frac{1}{2}$ (B) $\sqrt{2}$
(C) 2 (D) $2\sqrt{2}$

28. Two circular tracks T1 and T2 of radii 100 m and 20 m, respectively touch at a point A. Starting from A at the same time, Ram and Rahim are walking on track T1 and track T2 at speeds 15 km/hr and 5 km/hr respectively. The number of full rounds that Ram will make before he meets Rahim again for the first time is

29 Nov 2020, Slot 2, Q64

- (A) 5 (B) 3
(C) 2 (D) 4

CAT 2020 Slot 3 - Questions 29-31

29. Vimla starts for office every day at 9 am and reaches exactly on time if she drives at her usual speed of 40 km/hr. She is late by 6 minutes if she drives at 35 km/hr. One day, she covers two-thirds of her distance to office in one-thirds of her usual total time to reach office, and then stops for 8 minutes. The speed, in km/hr, at which she should drive the remaining distance to reach office exactly on time is

29 Nov 2020, Slot 3, Q58

- (A) 29 (B) 26
(C) 28 (D) 27

30. A and B are two railway stations 90 km apart. A train leaves A at 9:00 am, heading towards B at a speed of 40 km/hr. Another train leaves B at 10:30 am, heading towards A at a speed of 20 km/hr. The trains meet each other at

29 Nov 2020, Slot 3, Q66

- (A) 11 : 45 am (B) 11 : 20 am
(C) 11 : 00 am (D) 10 : 45 am

31. Anil, Sunil, and Ravi run along a circular path of length 3 km, starting from the same point at the same time, and going in the clockwise direction. If they run at speeds of 15 km/hr, 10 km/hr, and 8 km/hr, respectively, how much distance in km will Ravi have run when Anil and Sunil meet again for the first time at the starting point?

29 Nov 2020, Slot 3, Q71

- (A) 4.8 (B) 4.6
(C) 5.2 (D) 4.2

32. Two cars travel the same distance starting at 10:00 am and 11:00 am, respectively, on the same day. They reach their common destination at the same point of time. If the first car travelled for at least 6 hours, then the highest possible value of the percentage by which the speed of the second car could exceed that of the first car is

24 Nov 2019, Slot 1, Q67

- (A) 20 (B) 30
(C) 25 (D) 10

33. The wheels of bicycles A and B have radii 30 cm and 40 cm, respectively. While traveling a certain distance, each wheel of A required 5000 more revolutions than each wheel of B. If bicycle B traveled this distance in 45 minutes, then its speed, in km per hour, was

24 Nov 2019, Slot 1, Q72

- (A) 18π (B) 14π
(C) 16π (D) 12π

34. In a race of three horses, the first beat the second by 11 metres and the third by 90 metres. If the second beat the third by 80 metres, what was the length, in metres, of the racecourse?

24 Nov 2019, Slot 1, Q74

Type in the answer.

35. One can use three different transports which move at 10, 20, and 30 kmph, respectively to reach from A to B. Amal took each mode of transport for $\frac{1}{3}$ of his total journey time, while Bimal took each mode of transport for $\frac{1}{3}$ of the total distance. The percentage by which Bimal's travel time exceeds Amal's travel time is nearest to

24 Nov 2019, Slot 1, Q80

- (A) 22 (B) 20
(C) 19 (D) 21

CAT 2019 Slot 2 - Questions 36-38

36. Two ants A and B start from a point P on a circle at the same time, with A moving clock-wise and B moving anti-clockwise. They meet for the first time at 10:00 am when A has covered 60% of the track. If A returns to P at 10:12 am, then B returns to P at

24 Nov 2019, Slot 2, Q71

- (A) 10:25 am (B) 10:45 am
(C) 10:18 am (D) 10:27 am

37. A cyclist leaves A at 10 am and reaches B at 11 am. Starting from 10:01 am, every minute a motorcycle leaves A and moves towards B. Forty-five such motorcycles reach B by 11 am. All motorcycles have the same speed. If the cyclist had doubled his speed, how many motorcycles would have reached B by the time the cyclist reached B?

24 Nov 2019, Slot 2, Q81

- (A) 22 (B) 23
(C) 15 (D) 20

38. John jogs on track A at 6 kmph and Mary jogs on track B at 7.5 kmph. The total length of tracks A and B is 325 metres. While John makes 9 rounds of track A, Mary makes 5 rounds of track B. In how many seconds will Mary make one round of track A?

24 Nov 2019, Slot 2, Q86

Type in the answer.

CAT 2018 Slot 1 - Questions 39-41

39. Point P lies between points A and B such that the length of BP is thrice that of AP. Car 1 starts from A and moves towards B. Simultaneously, car 2 starts from B and moves towards A. Car 2 reaches P one hour after car 1 reaches P. If the speed of car 2 is half that of car 1, then the time, in minutes, taken by car 1 in reaching P from A is

25 Nov 2018, Slot 1, Q72

Type in the answer.

40. Train T leaves station X for station Y at 3 pm. Train S, traveling at three quarters of the speed of T, leaves Y for X at 4 pm. The two trains pass each other at a station Z, where the distance between X and Z is three-fifths of that between X and Y. How many hours does train T take for its journey from X to Y?

25 Nov 2018, Slot 1, Q75

Type in the answer.

41. The distance from A to B is 60 km. Partha and Narayan start from A at the same time and move towards B. Partha takes four hours more than Narayan to reach B. Moreover, Partha reaches the mid-point of A and B two hours before Narayan reaches B. The speed of Partha, in km per hour, is

25 Nov 2018, Slot 1, Q93

- | | |
|-------|-------|
| (A) 6 | (B) 4 |
| (C) 3 | (D) 5 |

CAT 2018 Slot 2 - Questions 42-44

42. Points A, P, Q and B lie on the same line such that P, Q and B are, respectively, 100 km, 200 km and 300 km away from A. Cars 1 and 2 leave A at the same time and move towards B. Simultaneously, car 3 leaves B and moves towards A. Car 3 meets car 1 at Q, and car 2 at P. If each car is moving in uniform speed then the ratio of the speed of car 2 to that of car 1 is

25 Nov 2018, Slot 2, Q69

- (A) 2 : 7
(B) 2 : 9
(C) 1 : 2
(D) 1 : 4

43. Points A and B are 150 km apart. Cars 1 and 2 travel from A to B, but car 2 starts from A when car 1 is already 20 km away from A. Each car travels at a speed of 100 kmph for the first 50 km, at 50 kmph for the next 50 km, and at 25 kmph for the last 50 km. The distance, in km, between car 2 and B when car 1 reaches B is

25 Nov 2018, Slot 2, Q83

Type in the answer.

44. On a long stretch of east-west road, A and B are two points such that B is 350 km west of A. One car starts from A and another from B at the same time. If they move towards each other, then they meet after 1 hour. If they both move towards east, then they meet in 7 hrs. The difference between their speeds, in km per hour, is

25 Nov 2018, Slot 2, Q99

Type in the answer.

CAT 2017 Slot 1 - Questions 45-46

45. 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

26 Nov 2017, Slot 1, Q70

Type in the answer.

46. 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

26 Nov 2017, Slot 1, Q73

(A) $\sqrt{6} : \sqrt{2}$

(B) $\sqrt{7} : 2$

(C) $2\sqrt{5} : 3$

(D) 3:2

CAT 2017 Slot 2 - Questions 47-49

47. In a 10 km race, A, B, and C, each running at uniform speed, get the gold, silver, and bronze medals, respectively. If A beats B by 1 km and B beats C by 1 km, then by how many metres does A beat C?

26 Nov 2017, Slot 2, Q68

Type in the answer.

48. Arun drove from home to his hostel at 60 miles per hour. While returning home he drove half way along the same route at a speed of 25 miles per hour and then took a bypass road which increased his driving distance by 5 miles, but allowed him to drive at 50 miles per hour along this bypass road. If his return journey took 30 minutes more than his onward journey, then the total distance traveled by him is

26 Nov 2017, Slot 2, Q70

(A) 55 miles

(B) 60 miles

(C) 65 miles

(D) 70 miles

49. A motorbike leaves point A at 1 pm and moves towards point B at a uniform speed. A car leaves point B at 2 pm and moves towards point A at a uniform speed which is double that of the motorbike. They meet at 3:40 pm at a point which is 168 km away from A. What is the distance, in km, between A and B?

26 Nov 2017, Slot 2, Q78

(A) 364

(B) 378

(C) 380

(D) 388

CAT 2006 - Questions 50-50

50. Arun, Barun and Kiranmala start from the same place and travel in the same direction at speeds of 30, 40 and 60 km per hour respectively. Barun starts two hours after Arun. If Barun and Kiranmala overtake Arun at the same instant, how many hours after Arun did Kiranmala start?

19 Nov 2006, Q75

- | | |
|-------|---------|
| (A) 3 | (B) 3.5 |
| (C) 4 | (D) 4.5 |
| (E) 5 | |
-

Questions 51 to 52

Ram and Shyam run a race between points A and B, 5 km apart. Ram starts at 9 a.m. from A at a speed of 5 km/hr, reaches B, and returns to A at the same speed. Shyam starts at 9:45 a.m. from A at a speed of 10 km/hr, reaches B and comes back to A at the same speed.

51. At what time do Ram and Shyam first meet each other?

20 Nov 2005, Q6

- | | |
|----------------|----------------|
| (A) 10 a.m. | (B) 10:10 a.m. |
| (C) 10:20 a.m. | (D) 10:30 a.m. |
-

52. At what time does Shyam overtake Ram?

20 Nov 2005, Q7

- | | |
|----------------|----------------|
| (A) 10:20 a.m. | (B) 10:30 a.m. |
| (C) 10:40 a.m. | (D) 10:50 a.m. |
-

CAT 2004 - Questions 53-56

53. Two boats, traveling at 5 and 10 kms per hour, head directly towards each other. They begin at a distance of 20 kms from each other. How far apart are they (in kms) one minute before they collide.

21 Nov 2004, Q39

- (A) $1/12$ (B) $1/6$
(C) $1/4$ (D) $1/3$
-

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

21 Nov 2004, Q42

- (A) 11 km/hr (B) 12 km/hr
(C) 13 km/hr (D) 14 km/hr
-

55. Karan and Arjun run a 100-meter race, where Karan beats Arjun 10 metres. To do a favour to Arjun, Karan starts 10 metres behind the starting line in a second 100 metre race. They both run at their earlier speeds. Which of the following is true in connection with the second race?

21 Nov 2004, Q49

- (A) Karan and Arjun reach the finishing line simultaneously.
(B) Arjun beats Karan by 1 metre
(C) Arjun beats Karan by 11 metres.
(D) Karan beats Arjun by 1 metre.
-

56. A sprinter starts running on a circular path of radius r metres. Her average speed (in metres/minute) is πr during the first 30 seconds, $\pi r/2$ during next one minute, $\pi r/4$ during next 2 minutes, $\pi r/8$ during next 4 minutes, and so on. What is the ratio of the time taken for the n th round to that for the previous round?

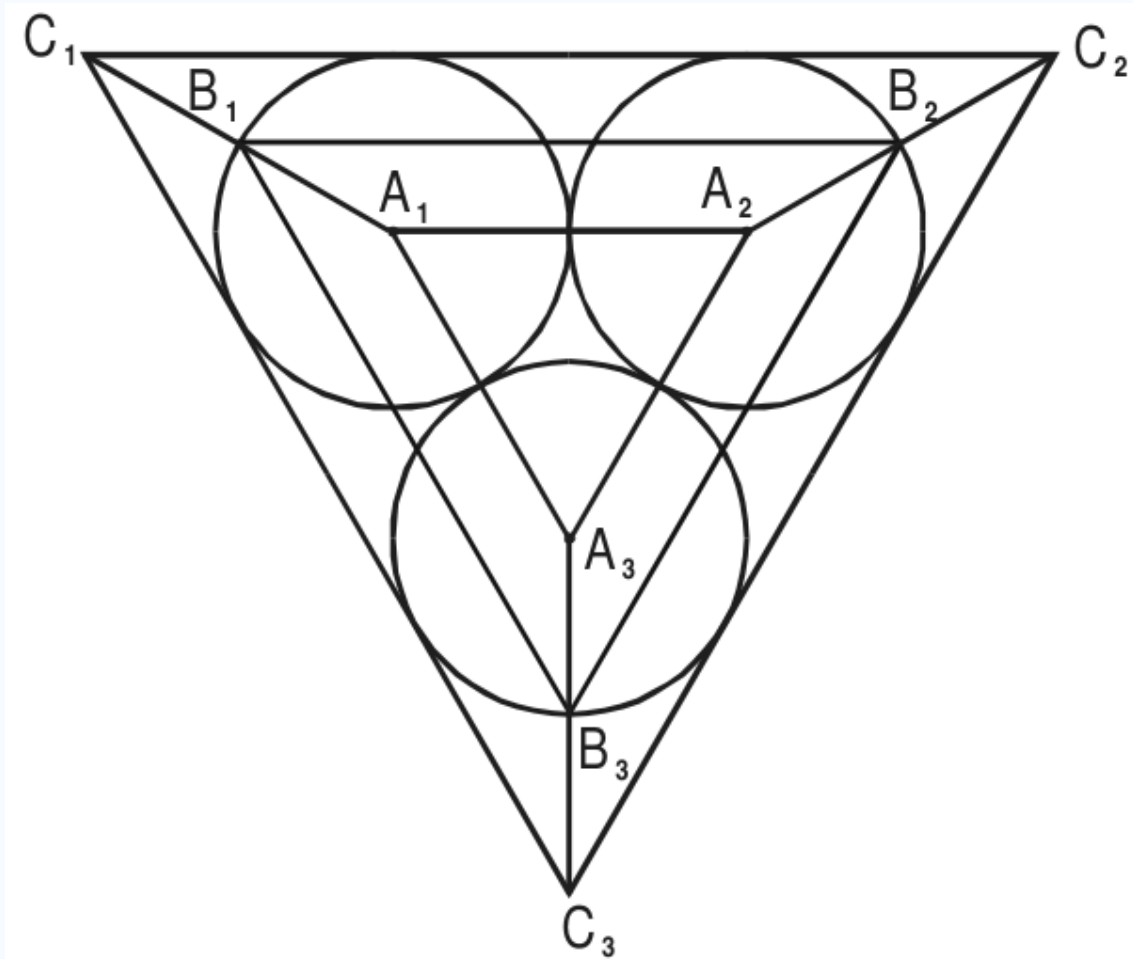
21 Nov 2004, Q61

- (A) 4 (B) 8
(C) 16 (D) 32
-

Questions 57 to 58

Directions for Questions 57 to 58: Answer the questions on the basis of the information given below.

Consider three circular parks of equal size with centres at A_1 , A_2 , and A_3 respectively. The parks touch each other at the edge as shown in the figure (not drawn to scale). There are three paths formed by the triangles $A_1A_2A_3$, $B_1B_2B_3$, and $C_1C_2C_3$, as shown. Three sprinters A, B and C begin running from points A_1 , B_1 and C_1 respectively. Each sprinter traverses her respective triangular path clockwise and returns to her starting point.



57. Sprinter A traverses distances A_1A_2 , A_2A_3 , and A_3A_1 at average speeds of 20, 30 and 15 respectively. B traverses her entire path at a uniform speed of $(10\sqrt{3} + 20)$. C traverses distances C_1C_2 , C_2C_3 and C_3C_1 at average speeds of $\frac{40}{3}(\sqrt{3} + 1)$, $\frac{40}{3}(\sqrt{3} + 1)$ and 120 respectively. All speeds are in the same unit. Where would B and C respectively be when A finishes her sprint?

15 Feb 2004, CAT 2003 Re-test, Q55

(A) B_1 , C_1

(B) B_2 , C_3

(C) B_1 , C_3

(D) B_1 , Somewhere between C_3 and C_1

58. Sprinters A, B and C traverse their respective paths at uniform speeds of u , v and w respectively. It is known that $u^2:v^2:w^2$ is equal to Area A : Area B : Area C, where Area A, Area B and Area C are the areas of triangles $A_1A_2A_3$, $B_1B_2B_3$ and $C_1C_2C_3$ respectively. Where would A and C be when B reaches point B_3 ?

15 Feb 2004, CAT 2003 Re-test, Q56

- (A) A_2 , C_3
 - (B) A_3 , C_3
 - (C) A_3 , C_2
 - (D) Somewhere between A_2 and A_3 , Somewhere between C_3 and C_1
-

59. In a 4000 meter race around a circular stadium having a circumference of 1000 meters, the fastest runner and the slowest runner reach the same point at the end of the 5th minute, for the first time after the start of the race. All the runners have the same starting point and each runner maintains a uniform speed throughout the race. If the fastest runner runs at twice the speed of the slowest runner, what is the time taken by the fastest runner to finish the race?

23 Nov 2003, CAT 2003 Original sitting, Q120

(A) 20 min

(B) 15 min

(C) 10 min

(D) 5 min

60. On a straight road XY, 100 m long, five heavy stones are placed 2 m apart beginning at the end X. A worker, starting at X, has to transport all the stones to Y, by carrying only one stone at a time. The minimum distance he has to travel is

CAT 2002, Q56

- (A) 472 m (B) 422 m
(C) 744 m (D) 860 m

61. Only a single rail track exists between stations A and B on a railway line. One hour after the north-bound super fast train N leaves station A for station B, a south-bound passenger train S reaches station A from station B. The speed of the super fast train is twice that of a normal express train E, while the speed of a passenger train S is half that of E. On a particular day, N leaves for B from A, 20 min behind the normal schedule. In order to maintain the schedule, both N and S increased their speeds. If the super fast train doubles its speed, what should be the ratio (approximately) of the speeds of passenger train to that of the super fast train so that the passenger train S reaches exactly at the scheduled time at A on that day?

CAT 2002, Q60

- (A) 1 : 3 (B) 1 : 4
(C) 1 : 5 (D) 1 : 6

62. On a 20 km tunnel, connecting two cities A and B, there are three gutters (1, 2 and 3). The distance between gutters 1 and 2 is half the distance between gutters 2 and 3. The distance from city A to its nearest gutter, gutter 1, is equal to the distance of city B from gutter 3. On a particular day, the hospital in city A receives information that an accident has happened at gutter 3. The victim can be saved only if an operation is started within 40 min. An ambulance started from city A at 30 km/hr and crossed gutter 1 after 5 min. If the driver had doubled the speed after that, what is the maximum amount of time would the doctor get to attend to the patient at the hospital. Assume that a total of 1 min is elapsed for taking the patient into and out of the ambulance?

CAT 2002, Q61

- (A) 4 min (B) 2.5 min
(C) 1.5 min (D) The patient died before reaching the hospital

63. A train approaches a tunnel AB. Inside the tunnel is a cat located at a point that is $\frac{3}{8}$ of the distance AB measured from the entrance A. When the train whistles the cat runs. If the cat moves to the entrance of the tunnel A, the train catches the cat exactly at the entrance. If the cat moves to the exit B, the train catches the cat at exactly the exit. What is the ratio of speed of train and cat ?

CAT 2002, Q87

- (A) 3 : 1 (B) 4 : 1
(C) 5 : 1 (D) None of these

64. At his usual rowing rate, Rahul can travel 12 miles downstream in a certain river in 6 hr less than it takes him to travel the same distance upstream. But if he could double his usual rowing rate for this 24 miles round trip, the downstream 12 miles would then take only 1 hr less than the upstream 12 miles. What is the speed of the current in miles per hour?

CAT 2001, Q20

- (A) $\frac{7}{3}$ (B) $\frac{4}{3}$
(C) $\frac{5}{3}$ (D) $\frac{8}{3}$

65. Shyama and Vyom walk up an escalator (moving stairway). The escalator moves at a constant speed. Shyama takes three steps for every two of Vyom's steps. Shyama gets to the top of the escalator after having taken 25 steps, while Vyom (because his slower pace lets the escalator do a little more of the work) takes only 20 steps to reach the top. If the escalator were turned off, how many steps would they have to take to walk up?

CAT 2001, Q25

- (A) 40 (B) 50
(C) 60 (D) 80

66. Train X departs from station A at 11 a.m. for station B, which is 180 km so far. Train Y departs from station B at 11 a.m. for station A. Train X travels at an average speed of 70 km/hr and does not stop anywhere until it arrives at station B. Train Y travels at an average speed of 50 km/hr, but has to stop for 15 min at station C, which is 60 km away from station B enroute to station A. Ignoring the lengths of the trains, what is the distance, to the nearest kilometre, from station A to the point where the trains cross each other?

CAT 2001, Q32

- (A) 112 km (B) 118 km
(C) 120 km (D) None of these

67. Three runners A, B and C run a race, with runner A finishing 12 m ahead of runner B and 18 m ahead of runner C, while runner B finishes 8 m ahead of runner C. Each runner travels the entire distance at a constant speed. What was the length of the race?

CAT 2001, Q36

- (A) 36 m (B) 48 m
(C) 60 m (D) 72 m

CAT 2000 - Questions 68-68

68. A truck travelling at 70 kilometres per hour uses 30% more diesel to travel a certain distance than it does when it travels at the speed of 50 kilometres per hour. If the truck can travel 19.5 kilometres on a litre of diesel at 50 kilometres per hour, how far can the truck travel on 10 litres of diesel at a speed of 70 kilometres per hour?

CAT 2000, Q60

- (A) 130
(B) 140
(C) 150
(D) 175
-

69. Navjivan Express from Ahmedabad to Chennai leaves Ahmedabad at 6:30 am and travels at 50km per hour towards Baroda situated 100 kms away. At 7:00 am Howrah - Ahmedabad express leaves Baroda towards Ahmedabad and travels at 40 km per hour. At 7:30 Mr. Shah, the traffic controller at Baroda realises that both the trains are running on the same track. How much time does he have to avert a head-on collision between the two trains?

CAT 1999, Q72

- (A) 15 minutes (B) 20 minutes
(C) 25 minutes (D) 30 minutes
-

CAT 1998 - Questions 70-70

70. Distance between A and B is 72 km. Two men started walking from A and B at the same time towards each other. The person who started from A travelled uniformly with average speed of 4 km/hr. While the other man travelled with varying speed as follows: in the first hour his speed was 2 km/hr, in the second hour it was 2.5 km/hr, in the third hour it was 3 km/hr, and so on. When will they meet each other?

CAT 1998, Q63

- (A) 7 hr
(B) 10 hr
(C) 35 km from A
(D) Mid-way between A and B
-

CAT 1997 - Questions 71-76

71. An express train travelling at 80 km/hr overtakes a goods train, twice as long and going at 40 km/hr on a parallel track, in 54 s. How long will the express train take to cross a platform of 400 m long?

CAT 1997, Q114

- (A) 36 s (B) 45 s
(C) 27 s (D) None of these

Questions 72 to 74

Boston is 4 hr ahead of Frankfurt and 2 hr behind India. X leaves Frankfurt at 6 p.m. on Friday and reaches Boston the next day. After waiting there for 2 hr, he leaves exactly at noon and reaches India at 1 a.m. On his return journey, he takes the same route as before, but halts at Boston for 1hr less than his previous halt there. He then proceeds to Frankfurt.

72. If his journey, including stoppage, is covered at an average speed of 180 mph during the journey from Frankfurt to India, what is the distance between Frankfurt and India?

CAT 1997, Q139

- (A) 3,600 miles (B) 4,500 miles
(C) 5,580 miles (D) Data insufficient

73. If X had started the return journey from India at 2.55 a.m. on the same day that he reached there, after how much time would he reach Frankfurt?

CAT 1997, Q140

- (A) 24 hr (B) 25 hr
(C) 26 hr (D) Data insufficient

74. What is X's average speed for the entire journey (to and fro)?

CAT 1997, Q141

- (A) 176 mph (B) 180 mph
(C) 165 mph (D) Data insufficient

Questions 75 to 76

A thief, after committing the burglary, started fleeing at 12 noon, at a speed of 60 km/hr. He was then chased by a policeman X. X started the chase, 15 min after the thief had started, at a speed of 65 km/hr.

75. At what time did X catch the thief?

CAT 1997, Q144

- (A) 3.30 p.m. (B) 3 p.m.
(C) 3.15 p.m. (D) None of these

76. If another policeman had started the same chase along with X, but at a speed of 60 km/hr, then how far behind was he when X caught the thief?

(A) 18.75 km

(B) 15 km

(C) 21 km

(D) 37.5 km

CAT 1996 - Questions 77-80

77. In a mile race, Akshay can be given a start of 128 m by Bhairav. If Bhairav can give Chinmay a start of 4 m in a 100 m dash, then who out of Akshay and Chinmay will win a race of one and half miles, and what will be the final lead given by the winner to the loser? (One mile is 1,600 m.)

CAT 1996, Q131

- (A) Akshay, $\frac{1}{12}$ mile
(C) Akshay, $\frac{1}{24}$ mile

- (B) Chinmay, $\frac{1}{32}$ mile
(D) Chinmay, $\frac{1}{16}$ mile

78. A man travels three-fifths of a distance AB at a speed $3a$, and the remaining at a speed $2b$. If he goes from B to A and return at a speed $5c$ in the same time, then

CAT 1996, Q133

- (A) $\frac{1}{a} + \frac{1}{b} = \frac{1}{c}$
(C) $\frac{1}{a} + \frac{1}{b} = \frac{2}{c}$

- (B) $a + b = c$
(D) None of these

79. A man travels from A to B at a speed x km/hr. He then rests at B for x hours. He then travels from B to C at a speed $2x$ km/hr and rests for $2x$ hours. He moves further to D at a speed twice as that between B and C. He thus reaches D in 16 hr. If distances A-B, B-C and C-D are all equal to 12 km, the time for which he rested at B could be

CAT 1996, Q134

- (A) 3 hr
(C) 2 hr

- (B) 6 hr
(D) 4 hr

80. In a watch, the minute hand crosses the hour hand for the third time exactly after every 3 hr 18 min and 15s of normal time. What is the time gained or lost by this watch in one day?

CAT 1996, Q139

- (A) 14 min 10 s lost
(C) 13 min 20 s gained

- (B) 13 min 48 s lost
(D) 14 min 40 s gained

CAT 1991 - Questions 81-81

81. Every day Neera's husband meets her at the city railway station at 6.00 p.m. and drives her to their residence. One day she left early from the office and reached the railway station at 5.00 p.m. She started walking towards her home, met her husband coming from their residence on the way and they reached home 10 minutes earlier than the usual time. For how long did she walk?

CAT 1991, Q90

- (A) 1 hour
(B) 50 minutes
(C) 1/2 hour
(D) 55 minutes
-

CAT 1990 - Questions 82-83

82. A car after traveling 18 km from a point A developed some problem in the engine and speed became $\frac{4}{5}$ of its original speed. As a result, the car reached point B 45 minutes late. If the engine had developed the same problem after traveling 30 km from A, then it would have reached B only 36 minutes late. The original speed of the car (in km per hour) and the distance between the points A and B (in km.) is

CAT 1990, Q36

- (A) 25, 130
(B) 30, 150
(C) 20, 90
(D) None of these

83. Two trains are traveling in opposite direction at uniform speed 60 and 50 km per hour respectively. They take 5 seconds to cross each other. If the two trains had traveled in the same direction, then a passenger sitting in the faster moving train would have overtaken the other train in 18 seconds. What are the lengths of trains (in metres)?

CAT 1990, Q38

- (A) 112.78
(B) 97.78, 55
(C) 102.78, 50
(D) 102.78, 55

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