

QUADRATIC EQUATIONS WS 7

Class 10 - Mathematics

1. The product of Ramu's age (in years) five years ago with his age (in years) 9 years later is 15. Find Ramu's present age. [3]
2. An aeroplane takes 1 hour less for a journey of 1200 km if its speed is increased by 100 km/hr from its usual speed. Find its usual speed. [3]
3. A man bought a certain number of toys for Rs.180, he kept one for his own use and sold the rest for one rupee each more than he gave for them, besides getting his own toy for nothing he made a profit of Rs.10. Find the number of toys. [3]
4. If Zeba were younger by 5 years than what she really is, then the square of her age (in years) would have been 11 more than 5 times her actual age. What is her age now? [3]
5. Two trains leave a railway station at the same time. The first train travels due west and the second train due north. The first train travels 5 km/hr faster than the second train. If after two hours, they are 50 km apart, find the average speed of each train. [3]
6. To fill a swimming pool two pipes are used. If the pipe of larger diameter used for 4 hours and the pipe of smaller diameter for 9 hours, only half of the pool can be filled. Find how long it would take for each pipe to fill the pool separately, if the pipe of smaller diameter takes 10 hours more than the pipe of larger diameter to fill the pool. [3]
7. The age of a man is twice the square of the age of his son. Eight years hence, the age of the man will be 4 years more than three times the age of his son. Find their present ages. [3]
8. Ashu is x years old while his mother Mrs Veena is x^2 years old. Five years hence Mrs Veena will be three times old as Ashu. Find their present ages. [3]
9. Nine times the side of one square exceeds a perimeter of a second square by one metre and six times the area of the second square exceeds twenty-nine times the area of the first by one square metre, Find the side of each square. [3]
10. The product of Shikha's age five years ago and her age 8 years later is 30, her age at both times being given in years. Find her present age. [3]
11. If twice the area of a smaller square is subtracted from the area of a larger square, the result is 14 cm^2 . However, if twice the area of the larger square is added to three times the area of the smaller square, the result is 203 cm^2 . Determine the sides of the square. [3]
12. A bus travels at a certain average speed for a distance of 75 km and then travels a distance of 90 km at an average speed of 10 km/hr more than the first speed. If it takes 3 hours to complete the total journey, find its original speed. [3]
13. The angry Arjun carried some arrows for fighting with Bheeshm. With half the arrows, he cut down the arrows thrown by Bheeshm on him and with six other arrows he killed the rath driver of Bheeshm. With one arrow each, he knocked down respectively the rath, flag and the bow of Bheeshm. Finally, with one more than four [3]

- times the square root of arrows he laid Bheeshm unconscious on an arrow bed. Find the total number of arrows Arjun had.
14. Seven years ago Varun's age was five times the square of Swati's age. Three years hence Swati's age will be two fifth of Varun's age. Find present ages of Varun and Swati. [3]
 15. The perimeter of right-angled triangle is five times the length of its shortest side. The numerical value of the area of the triangle is 15 times the numerical value of the length of the shortest side. Find the lengths of the three sides of the triangle. [3]
 16. An aeroplane left 50 minutes later than its scheduled time, and in order to reach the destination, 1250 km away, in time, it had to increase its speed by 250 km/hr from its usual speed. Find its usual speed. [3]
 17. The speed of a boat in still water is 8 km/hr. It can go 15 km upstream and 22 km downstream in 5 hours. Find the speed of the stream. [3]
 18. In a flight of 2800 km, an aircraft was slowed down due to bad weather. Its average speed is reduced by 100 km/hr and time of flight increased by 30 minutes. Find the original duration of the flight. [3]
 19. At present Asha's age (in years) is 2 more than the square of her daughter Nisha's age. When Nisha grows to her mother's present age, Asha's age would be one year less than 10 times the present age of Nisha. Find the present ages of both Asha and Nisha. [3]
 20. Out of a group of swans, $\frac{7}{2}$ times the square root of the total number of swans are playing on the shore of a tank. Remaining two are playing, with amorous fight, in the water. What is the total number of swans? [3]
 21. A man is $3\frac{1}{2}$ times as old as his son. If the sum of the squares of their ages is 1325, find the ages of the father and the son. [3]
 22. A party of tourists booked a room in a hotel for Rs.1200. Three of the members failed to pay, as a result, others had to pay Rs. 20 more (each). How many tourists were there in the party? [3]
 23. A train travels 180 km at a uniform speed. If the speed had been 9 km/hr more, it would have taken 1 hour less for the same journey. Find the speed of the train. [3]
 24. Some students planned a picnic. The budget for food was ₹ 480. But eight of these failed to go and thus the cost of food for each member increased by ₹ 10. How many students went to picnic? [3]
 25. A piece of cloth costs ₹ 35. If the piece were 4 m longer and each metre costs ₹ one less, the cost would remain unchanged. How long is the piece? [3]
 26. A bookseller buys a number of books for ₹ 1760. If he had bought 4 more books for the same amount, each book would have cost ₹ 22 less. How many books did he buy? [3]
 27. A farmer wishes to grow a 100 m^2 rectangular vegetable garden. Since he has with him only 30 m barbed wire, he fences three sides of the rectangular garden letting compound wall of his house act as the fourth side-fence. Find the dimensions of his garden. [3]
 28. The distance between Mumbai and Pune is 192 km. Travelling by the Deccan Queen, it takes 48 minutes less than another train. Calculate the speed of the Deccan Queen if the speeds of the two trains differ by 20 km/hr. [3]
 29. A plane left 30 minutes later than the schedule time and in order to reach its destination 1500 km away in time it has to increase its speed by 250 km/hr from its usual speed. Find its usual speed. [3]
 30. One-fourth of a herd of camels was seen in the forest. Twice the square root of the herd had gone to mountains and the remaining 15 camels were seen on the bank of a river. Find the total number of camels. [3]
 31. A train travels at a certain average speed for a distance of 54 km and then travels a distance of 63 km at an average speed of 6 km/hr more than the first speed. If it takes 3 hours to complete the total journey, what is its first speed? [3]

32. Vikram wishes to fit three rods together in the shape of a right triangle. The hypotenuse is to be 2 cm longer than the base and 4 cm longer than the altitude. What should be the lengths of the rods? [3]
33. Two years ago, a man's age was three times the square of his son's age. In three years time, his age will be four times his son's age. Find their present ages. [3]
34. Some students planned a picnic. The total budget for hiring a bus was ₹ 1440. Later on, eight of these refused to go and instead paid their total share of money towards the fee of one economically weaker student of their class, and thus, the cost for each member who went for picnic, increased by ₹ 30. [3]
- i. How many students attended the picnic?
- ii. How much money in total was paid towards the fee? Which value is reflected in this question?
35. At t minutes past 2 pm the time needed by the minutes hand of a clock to show 3 pm was found to be 3 minutes less than $\frac{t^2}{4}$ minutes. Find t . [3]
36. A plane left 40 minutes late due to bad weather and in order to reach its destination, 1600 km away in time, it had to increase its speed by 400 km/hr from its usual speed. Find the usual speed of the plane. [3]
37. A passenger train takes one hour less for a journey of 150 km if its speed is increased by 5 km/hr from its usual speed. Find the usual speed of the train. [3]
38. A dealer sells an article for ₹ 75 and gains as much per cent as the cost price of the article. Find the cost price of the article. [3]
39. A girl is twice as old as her sister. Four years hence, the product of their ages (in years) will be 160. Find their present ages. [3]
40. Had Aarush scored 8 more marks in a Mathematics test, out of 35 marks, 7 times these marks would have been 4 less than square of his actual marks. How many marks did he get in the test? [3]
41. A train covers a distance of 90 km at a uniform speed. Had the speed been 15 km/hour more, it would have taken 30 minutes less for the journey. Find the original speed of the train. [3]
42. If the list price of a toy is reduced by ₹ 2, a person can buy 2 toys more for ₹ 360. Find the original price of the toy. [3]
43. A shopkeeper buys a number of books for ₹ 80. If he had bought 4 more books for the same amount, each book would have cost ₹1 less. How many books did he buy? [3]
44. A takes 10 days less than the time taken by B to finish a piece of work. If both A and B together can finish the work in 12 days, find the time taken by B to finish the work. [3]
45. A peacock is sitting on the top of a pillar, which is 9 m high from a point 27 m away from the bottom of the pillar, a snake is coming to its hole at the base of the pillar. Seeing the snake, the peacock pounces on it. If their speeds are equal, at what distance from the hole is the snake caught? [3]
46. If two pipes function simultaneously, a reservoir will be filled in 12 hours. One pipe fills the reservoir 10 hours faster than the other. How many hours will the second pipe take to fill the reservoir? [3]
47. A speed of a boat in still water is 11 km/hour. It can go 12 km upstream and return downstream to the original point in 2 hours 45 minutes. Find the speed of the stream. [3]