

1. Solve the following quadratic equation: $x^2 + 4x - 8 = 0$
Give your answer correct to one decimal place.
(Use mathematical tables if necessary.) [2023]
2. If 3 is a root of the quadratic equation $x^2 - px + 3 = 0$ then p is equal to:
(a) 4
(b) 3
(c) 5
(d) 2 [2023]
3. One of the roots of the quadratic equation $x^2 - 8x + 5 = 0$ is 7.3166. The root of the equation correct to 4 significant figures is: [1]
(a) 7.3166
(b) 7.317
(c) 7.316
(d) 7.32 [2021 Semester-1]
4. Which of the following quadratic equations has 2 and 3 as its roots? [1]
(a) $x^2 - 5x + 6 = 0$
(b) $x^2 + 5x + 6 = 0$
(c) $x^2 - 5x - 6 = 0$
(d) $x^2 + 5x - 6 = 0$ [2021 Semester-1]
5. Solve the following Quadratic Equation:
 $x^2 - 7x + 3 = 0$
Give your answer correct to two decimal places. [2020]
6. Solve for x the quadratic equation $x^2 - 4x - 8 = 0$
Give your answer correct to three significant figures. [2019]
7. Solve $x^2 + 7x = 7$ and give your answer correct to two decimal places. [4] [2018]
8. Find the value of k for which the following equation has equal roots. [3]
 $x^2 + 4kx + (k^2 - k + 2) = 0$ [2018]
9. Solve the equation $4x^2 - 5x - 3 = 0$ and give your answer correct to two decimal places. [4] [2017]
10. Solve the quadratic equation $x^2 - 3(x + 3) = 0$; Give your answer correct to two significant figures. [3] [2016]
11. Find the value of 'K' for which $x = 3$ is a solution of the quadratic equation, $(K + 2)x^2 - Kx + 6 = 0$. Thus find the other root of the equation. [2015]
12. Solve for x using the quadratic formula. Write your answer correct to two significant figures, $(x - 1)^2 - 3x + 4 = 0$. [3] [2014]
13. Solve the following equation and calculate the answer correct to two decimal places:
 $x^2 - 5x - 10 = 0$ [3] [2013]

14. Without solving the following quadratic equation, find the value of 'p' for which the given equation has real and equal roots: $x^2 + (p - 3)x + p = 0$ [2013]
15. Without solving the following quadratic equation, find the value of 'm' for which the given equation has real and equal roots.
 $x^2 + 2(m - 1)x + (m + 5) = 0$ [3] [2012]
16. Solve the following equation and give your answer correct to 3 significant figures:
 $5x^2 - 3x - 4 = 0$ [3] [2012]
17. Solve the following equation:
 $x - \frac{18}{x} = 6$. Give your answer correct to two significant figures. [3] [2011]
18. Without solving the following quadratic equation, find the value of 'p' for which the roots are equal. $px^2 - 4x + 3 = 0$ [3] [2010]
19. A man covers a distance of 100 km, travelling with a uniform speed of x km/hr. Had the speed been 5 km/hr more it would have taken 1 hour less. Find x the original speed. [2023]
20. The difference of two natural numbers is 7 and their product is 450. Find the numbers. [2020]
21. The product of two consecutive natural numbers which are multiples of 3 is equal to 810. Find the two numbers. [3] [2019]
22. ₹ 7500 were divided equally among a certain number of children. Had there been 20 less children, each would have received ₹ 100 more. Find the original number of children. [2018]
23. Two cars X and Y use 1 litre of diesel to travel x km and (x + 3) km respectively. If both the cars covered a distance of 72 km, then:
- i. The number of litres of diesel used by car X is: [1]
- (a) $\frac{72}{x-3}$ litres (c) $\frac{72}{x}$ litres
 (b) $\frac{72}{x+3}$ litres (d) $\frac{12}{x}$ litres
- ii. The number of litres of diesel used by car Y is: [1]
- (a) $\frac{72}{x-3}$ litres (c) $\frac{72}{x}$ litres
 (b) $\frac{72}{x+3}$ litres (d) $\frac{12}{x+3}$ litres
- iii. If car X used 4 litres of diesel more than car Y in the journey, then: [1]
- (a) $\frac{72}{x-3} - \frac{12}{x} = 4$ (c) $\frac{72}{x} - \frac{72}{x+3} = 4$
 (b) $\frac{72}{x+3} - \frac{72}{x} = 4$ (d) $\frac{72}{x-3} - \frac{72}{x+3} = 4$
- iv. The amount of diesel used by the car X is: [1]
- (a) 6 litres
 (b) 12 litres
 (c) 18 litres
 (d) 24 litres

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24. The sum of the ages of Vivek and his younger brother Amit is 47 years. The product of their ages in years is 550. Find their ages. **[4]** [2017]
25. A bus covers a distance of 240 km at a uniform speed. Due to heavy rain its speed gets reduced by 10 km/h and as such it takes two hours longer to cover the total distance. Assuming the uniform speed to be 'x' km/h, form an equation and solve it to evaluate 'x'. **[3]** [2016]
26. Sum of two natural numbers is 8 and the difference of their reciprocal is $\frac{2}{15}$. Find the numbers. **[3]** [2015]
27. A two digit positive number is such that the product of its digits is 6. If 9 is added to the number, the digits interchange their places. Find the number. **[4]** [2014]
28. A shopkeeper purchases a certain number of books for Rs. 960. If the cost per book was 8 less, the number of books that could be purchased for Rs. 960 would be 4 more. Write an equation, taking the original cost of each book to be Rs. x, and solve it to find the original cost of the books. **[4]** [2013]
29. A car covers a distance of 400 km at a certain speed. Had the speed been 12 km/h more, the time taken for the journey would have been 1 hour 40 minutes less. Find the original speed of the car. **[4]** [2012]
30. Rs.480 is divided equally among 'x' children. If the number of children was 20 more, then each would have got Rs. 12 less. Find 'x'. **[3]** [2011]
31. A positive number is divided into two parts such that the sum of the squares of the two parts is 20. The square of the larger part is 8 times the smaller part. Taking x as the smaller part of the two parts, find the number. **[4]** [2010]