

# Maths Work Sheet

Class - X

Chapter:- Quadratic Equations

**Q01 :}** Form the quadratic equation whose roots are:

a)  $-3$  and  $-4$

b)  $\frac{1}{2}$  and  $-3$

c)  $\frac{1}{4}$  and  $\frac{1}{3}$

**Q02 :}** 300 apples are distributed equally among a certain number of students. Had there been 10 more students, each would have received one apple less. Find the number of students.

**Q03 :}** Solve for  $x$ :  $p^2x^2 + (p^2 - q^2)x - q^2 = 0$ .

**Q04 :}** Find the solutions by the method of completion of squares.  $3x^2 + 23x + 20 = 0$ .

**Q05 :}** Find the roots by factorization:  $3\sqrt{3}x^2 + 19x + 10\sqrt{3} = 0$ .

**Q06 :}** Find the solutions by quadratic equation formula:  $3x^2 - 13x - 100 = 0$ .

**Q07 :}** Solve for  $x$ :  $12abx^2 - (9a^2 - 8b^2)x - 6a = 0$ .

**Q08 :}** Solve for  $x$ :  $(a + b)^2x^2 + 8(a^2 - b^2)x + 16(a - b)^2 = 0$ .

**Q09 :}** The speed of a boat in still water is 11 km/h. It can go 12 km upstream and come back in 2 hours 45 minutes. Find the speed of the stream.

**Q10 :}** The product of the digits of a 2 digit number is 15. If 18 is added to the number, the digits interchange their places. Find the number.

**Q11 :}** Divide 29 into 2 parts so that the sum of their squares is 425.

**Q12 :}** The denominator of a fraction is one more than twice the numerator. If the sum of the fraction and its reciprocal is  $\frac{16}{21}$ , find the fraction. [Ans.:  $\frac{3}{7}$ ]

**Q13 :}** The hypotenuse of a right triangle is 6m more than twice the shortest side. If the third side is 2 metre less than the hypotenuse, find the sides of the triangle. [Ans.: 10m, 24m, 26m]

**Q14 :}** The hypotenuse of a right triangle is  $3\sqrt{5}$  cm. If the smaller side is tripled and the larger side is doubled, the new hypotenuse will be 15 cm. Find the length of each side. [Ans.: 3cm, 6cm]

**Q15 :}** The lengths of the sides forming right angle of a right angled  $\Delta$  is  $5x$  cm and  $(3x - 1)$  cm. Area of the triangle is  $60 \text{ cm}^2$ . Find the hypotenuse. [Ans.: 17cm]

**Q16 :}** A takes 6 days less than the time taken by B to complete a work. If they together can complete the work in 4 days, find the time taken by each to finish the work. [Ans.: A = 6 days, B = 12 days.]

**Q17 :}** A person on a tour had Rs. 12000 for his daily expenses. In order to extend his journey for 2 more days he had to cut down his daily expenses by Rs. 300. Find the duration of the tour he planned first.

**Q18 :}** A man sold an article for Rs. 96 gaining as many as percent as the cost price (in Rupees) is. Find the cost price of the article. [Ans.: Rs 60]

**Q19 :}** 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 hole, the snake caught? [Ans.: 12 m]

**Q20 :}** One fourth of a herd of camels was seen in the forest. Twice the square root of the herd gone to mountains and the remaining 15 camels were seen on the bank of the river. Find the total number of camels. [Ans.: 36]

**Q21 :}** Some boys planned a picnic. The budget for food was Rs. 3000. Five boys could not go for picnic and thus the cost of food for each member increased by Rs. 30. How many boys attended the picnic? [Ans.: 20]

**Q22 :}** Two taps running together can fill a cistern in  $3\frac{1}{13}$  minutes. If one of the taps takes 3 minutes more than the other to fill it, find the time in which each pipe would fill the cistern. [Ans.: 5 & 8]

**Q23 :}** The product of 3 consecutive even numbers is equal to 20 times their sum. Find the numbers. [Ans.: 6, 8, 10]

**Q24 :}** The sum of the squares of two positive integers is 208. If the square of the larger number is 18 times the smaller number, find the numbers. [Ans.: 8, 12]

**Q25 :}** The length of a rectangle is 2 cm more than twice its breadth and its area is 60 cm<sup>2</sup>. Find the diagonal of the rectangle. [Ans.: 13 cm]