EduSahara™ Worksheet

Name : Chapter Based Worksheet

Chapter : Quadratic Equations

Grade : SSC Grade X

1. Find the discriminant of the quadratic equation $(x^2+10x+25)=0$

   (i) -1 (ii) -2 (iii) 2 (iv) 1 (v) 0

2. Solve : $(x^4-8x^2+16)=0$

   (i) $1,(-3),1,(-3)$ (ii) $0,(-5),(-1),(-5)$ (iii) $2,(-2),2,(-2)$ (iv) $5,1,4,0$ (v) $3,(-1),3,(-1)$

3. Find the roots of the quadratic equation $(14x^2+27x-20)=0$

   (i) $(\frac{4}{7},(\frac{-5}{2}))$ (ii) $(\frac{4}{9},(\frac{-5}{2}))$ (iii) $(\frac{6}{7},(\frac{-7}{2}))$ (iv) $(\frac{4}{9},-3)$ (v) $(\frac{6}{7},-3)$

4. A two digit number is such that the product of the digits is 56. When 9 is added to the number, the digits are reversed. Find the number

   (i) 79 (ii) 78 (iii) 76 (iv) 80 (v) 77

5. Find the roots of the quadratic equation correct to two decimal places $(7x^2+41x+30)=0$

   (i) 1.14 , 6.00 (ii) 0.14 , 3.00 (iii) -0.86 , -5.00 (iv) 7.14 , 3.00 (v) 6.14 , 2.00

6. Find two natural numbers which differ by 15 and the sum of whose squares is 873

   (i) $(10,25)$ (ii) $(14,29)$ (iii) $(11,26)$ (iv) $(13,28)$ (v) $(12,27)$

7. A play field is 50.00 m by 40.00 m. It has a road all around it on the outside. Find the width of the road if its area is $\frac{11}{10}$ of the area of the play field

   (i) 12.00 m (ii) 8.00 m (iii) 10.00 m (iv) 9.00 m (v) 11.00 m

8. Find the discriminant of the quadratic equation $(x^2+4x+4)=0$

   (i) -3 (ii) 3 (iii) -1 (iv) 0 (v) 1

9. Solve : $40x^2+43bx+7b^2=0$

   (i) $-\frac{7b}{6},-\frac{b}{3}$ (ii) $-\frac{7b}{8},-\frac{b}{5}$ (iii) $-\frac{7b}{10},-\frac{b}{7}$ (iv) $-\frac{5b}{8},-\frac{b}{5}$ (v) $-\frac{9b}{8},-\frac{3b}{5}$

10. Solve : $24x^2b^2-14axb-3a^2=0$

    (i) $-\frac{a}{2b},\frac{a}{4b}$ (ii) $-\frac{a}{6b},\frac{3a}{4b}$ (iii) $-\frac{a}{8b},\frac{a}{2b}$ (iv) $\frac{a}{6b},\frac{5a}{4b}$ (v) $-\frac{a}{4b},\frac{3a}{2b}$

11. Solve : $16x^2b^2 + 18a^2xb + 5a^4 = 0$

(i) $-\frac{a^2}{4b}, -\frac{a^2}{2b}$ (ii) $\frac{a^2}{2b}, -\frac{3a^2}{8b}$ (iii) $-\frac{3a^2}{2b}, -\frac{7a^2}{8b}$ (iv) $-\frac{a^2}{2b}, -\frac{5a^2}{8b}$ (v) $-\frac{a^2}{b}, -\frac{5a^2}{6b}$

12. Find the discriminant of the quadratic equation $(25x^2 - 20x + 3) = 0$

(i) 102 (ii) 100 (iii) 98 (iv) 101 (v) 99

13. Solve : $12x^2 - 2\sqrt{3}x - 30 = 0$

(i) $\frac{6}{\sqrt{12}}, \frac{(-5)}{\sqrt{48}}$ (ii) $\frac{6\sqrt{4}}{\sqrt{12}}, \frac{(-5)}{\sqrt{12}}$ (iii) $\frac{6}{\sqrt{12}}, \frac{(-5)}{\sqrt{12}}$ (iv) $\frac{6}{\sqrt{48}}, \frac{(-5)}{\sqrt{48}}$ (v) $\frac{6\sqrt{4}}{\sqrt{12}}, \frac{(-5\sqrt{4})}{\sqrt{12}}$

14. Find the roots of the quadratic equation $(32x^2 + 4x - 10) = 0$

(i) $(\frac{3}{2}, (\frac{-5}{6}))$ (ii) $(\frac{1}{2}, (\frac{-5}{8}))$ (iii) $(\frac{1}{4}, (\frac{-5}{8}))$ (iv) $(\frac{3}{2}, (\frac{-7}{8}))$ (v) $(\frac{1}{4}, (\frac{-5}{6}))$

15. Solve : $-6\sqrt{3}x^2 + 51x + 9\sqrt{3} = 0$

(i) $\frac{\sqrt{3}}{(-6)}, \frac{9}{\sqrt{3}}$ (ii) $\frac{\sqrt{3}}{(-6\sqrt{4})}, \frac{9}{\sqrt{12}}$ (iii) $\frac{\sqrt{12}}{(-6)}, \frac{9}{\sqrt{3}}$ (iv) $\frac{\sqrt{3}}{(-6)}, \frac{9}{\sqrt{12}}$ (v) $\frac{\sqrt{12}}{(-6)}, \frac{9\sqrt{4}}{\sqrt{3}}$

One pipe can fill a cistern in 7 hours less than the other.

16. The two pipes together can fill it in $7\frac{11}{31}$ hrs.

Find the time that each pipe will take to fill the cistern.

(i) 11 hr , 18 hr (ii) 14 hr , 21 hr (iii) 12 hr , 19 hr (iv) 10 hr , 17 hr (v) 13 hr , 20 hr

17. Solve : $24x^2a^4 - 2bxa^2 - 15b^2 = 0$

(i) $-\frac{b}{2a^2}, \frac{5b}{8a^2}$ (ii) $-\frac{3b}{4a^2}, \frac{5b}{6a^2}$ (iii) $-\frac{5b}{4a^2}, \frac{b}{2a^2}$ (iv) $-\frac{b}{4a^2}, \frac{7b}{6a^2}$ (v) $-\frac{3b}{2a^2}, \frac{5b}{4a^2}$

18. If the difference of two numbers is 7 and their product is 144, find the numbers

(i) 18, 11 or (-18), (-11) (ii) 16, 9 or (-16), (-9) (iii) 14, 6 or (-14), (-6) (iv) 15, 8 or (-15), (-8)

(v) 17, 10 or (-17), (-10)

19. A number is of two digits. The digit in unit's place is the square of the digit in ten's place. The number formed by reversing the digits exceeds twice the number by (-6) . Find the number

(i) 24 (ii) 25 (iii) 26 (iv) 22 (v) 23

20. Solve : $\left(\frac{x}{(x+4)}\right)^2 - 9\left(\frac{x}{(x+4)}\right) + 14 = 0$

(i) $(\frac{-14}{3}), -8$ (ii) $(\frac{-22}{5}), -7$ (iii) $-6, -9$ (iv) $-4, -6$ (v) $(\frac{-16}{3}), -10$

21. The perimeter of a rectangular room is 78.00 m and the length of its diagonal is 33.54 m . Find the dimensions of the room

(i) 33.00 m , 6.00 m (ii) 32.00 m , 7.00 m (iii) 31.00 m , 8.00 m (iv) 34.00 m , 5.00 m

(v) 35.00 m , 4.00 m

22. The denominator of a fraction exceeds the numerator by 7 .
The square of the fraction is equal to $\frac{81}{256}$. Find the fraction

(i) $\frac{9}{16}$ (ii) $\frac{7}{16}$ (iii) $\frac{1}{2}$ (iv) $\frac{11}{16}$ (v) $\frac{9}{14}$

23. 12 is divided into two parts such that the sum of their reciprocals is $\frac{3}{5}$.
Find the two parts

(i) $(3,9)$ (ii) $(4,8)$ (iii) $(1,11)$ (iv) $(2,10)$ (v) $(0,12)$

24. The sum of the ages of a father and his son is 54 years whereas eight years ago, the product of their ages was 136. Find the current ages of the son and the father.

(i) 10 years , 44 years (ii) 14 years , 40 years (iii) 13 years , 41 years (iv) 12 years , 42 years

(v) 11 years , 43 years

25. Solve : $63x^2 - 50abx + 8a^2b^2 = 0$

(i) $\frac{2ab}{11}, \frac{4ab}{9}$ (ii) $\frac{2ab}{9}, \frac{4ab}{7}$ (iii) $0, \frac{2ab}{7}$ (iv) $\frac{2ab}{7}, \frac{4ab}{5}$ (v) $\frac{4ab}{9}, \frac{6ab}{7}$

Assignment Key

1) (v)	2) (iii)	3) (i)	4) (ii)	5) (iii)	6) (v)
7) (iii)	8) (iv)	9) (ii)	10) (ii)	11) (iv)	12) (ii)
13) (iii)	14) (ii)	15) (i)	16) (iii)	17) (ii)	18) (ii)
19) (i)	20) (i)	21) (i)	22) (i)	23) (iv)	24) (iv)
25) (ii)					