EduSahara™ Worksheet

Name : Chapter Based Worksheet

Chapter : Quadratic Equations

Grade : CBSE Grade X

1. A play field is 90.00 m by 70.00 m. It has a road all around it on the outside. Find the width of the road if its area is $\frac{23}{9}$ of the area of the play field

(i) 37.00 m (ii) 36.00 m (iii) 34.00 m (iv) 33.00 m (v) 35.00 m

2. Solve : $15x^2 + 6ax + 10x + 4a = 0$

(i) $0, -\frac{4}{9}$ (ii) $-\frac{2a}{7}, -\frac{6}{11}$ (iii) $-\frac{2a}{3}, -\frac{6}{7}$ (iv) $-\frac{2a}{5}, -\frac{2}{3}$ (v) $-\frac{4a}{5}, -\frac{8}{9}$

3. Find the roots of the quadratic equation $(x^2 - 10x + 21) = 0$

(i) (8,3) (ii) (10,2) (iii) (10,0) (iv) (7,3) (v) (8,2)

4. The sum of the roots of the quadratic equation $(81x^2 - 72x + 16) = 0$ is

(i) $\frac{10}{9}$ (ii) $\frac{8}{9}$ (iii) $\frac{8}{11}$ (iv) $\frac{8}{7}$ (v) $\frac{2}{3}$

5. Solve : $35x^2 + 30x + 28xb + 24b = 0$

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

6. Solve : $10x^2 + 3ab^2x - a^2b^4 = 0$

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

7. The sum of the numerator and denominator of a fraction is 8. If 4 is added to both the numerator and denominator, the fraction is increased by $\frac{8}{45}$. Find the fraction

(i) $\frac{3}{5}$ (ii) $\frac{5}{3}$ (iii) $\frac{1}{5}$ (iv) 1

8. Solve : $\frac{(2x+3)}{(2x+1)}+\frac{(x-3)}{(x+2)}=\frac{113}{77}$

(i) $(6,\frac{1}{84})$ (ii) $(5,\frac{1}{82})$ (iii) $(3,(\frac{-1}{82}))$ (iv) $(4,\frac{1}{80})$ (v) $(7,\frac{3}{82})$

9. Solve : $16x^2b^2-6axb-a^2=0$

(i) $\frac{3a}{2b},\frac{a}{8b}$ (ii) $\frac{a}{b},-\frac{a}{6b}$ (iii) $\frac{a}{4b},-\frac{a}{10b}$ (iv) $\frac{a}{2b},-\frac{a}{8b}$ (v) $-\frac{a}{2b},-\frac{3a}{8b}$

10. Solve : $8x^2b-4xb+2x-1=0$

(i) $-\frac{1}{2},-\frac{1}{2b}$ (ii) $\frac{3}{2},0$ (iii) $\frac{1}{4},-\frac{1}{5b}$ (iv) $1,-\frac{1}{3b}$ (v) $\frac{1}{2},-\frac{1}{4b}$

11. The sum of the ages of a father and his son is 55 years whereas nine years ago, the product of their ages was 132. Find the current ages of the son and the father.

(i) 15 years , 40 years (ii) 14 years , 41 years (iii) 11 years , 44 years (iv) 12 years , 43 years

(v) 13 years , 42 years

12. Solve : $15x^2a^2-4xa-4=0$

(i) $0,-\frac{4}{5a}$ (ii) $\frac{2}{3a},-\frac{2}{5a}$ (iii) $\frac{2}{5a},-\frac{2}{7a}$ (iv) $\frac{2}{a},-\frac{2}{3a}$ (v) $\frac{4}{3a},0$

13. Find the discriminant of the quadratic equation $x^2=0$

(i) 0 (ii) 2 (iii) -1 (iv) -3 (v) 1

14. A two digit number is such that the product of the digits is 20. When 9 is subtracted from the number, the digits are reversed. Find the number

(i) 51 (ii) 55 (iii) 54 (iv) 56 (v) 53

15. Solve : $x^2+6x-3=0$

(i) $(-3+\sqrt{36}),(-3-\sqrt{36})$ (ii) $(-3+\sqrt{12}),(-3-\sqrt{12})$ (iii) $(-3\sqrt{5}+\sqrt{12}),(-3\sqrt{5}-\sqrt{12})$

(iv) $(-3+\sqrt{24}),(-3-\sqrt{24})$ (v) $(-3\sqrt{4}+\sqrt{12}),(-3\sqrt{4}-\sqrt{12})$

16. Three consecutive natural numbers are such that the square of the middle number exceeds the difference of the squares of the other two by 252 . Find the three numbers.

(i) 15, 16, 17 (ii) 16, 17, 18 (iii) 18, 19, 20 (iv) 19, 20, 21 (v) 17, 18, 19

17. Solve : $\sqrt{(3x^2-36x+81)} = (x-7)$

(i) $(\frac{11}{2}\sqrt{4}-\frac{1}{2}\sqrt{57}),(\frac{11}{2}\sqrt{4}+\frac{1}{2}\sqrt{57})$ (ii) $(\frac{11}{2}\sqrt{5}-\frac{1}{2}\sqrt{57}),(\frac{11}{2}\sqrt{5}+\frac{1}{2}\sqrt{57})$

(iii) $(\frac{11}{2}-\frac{1}{2}\sqrt{114}),(\frac{11}{2}+\frac{1}{2}\sqrt{114})$ (iv) $(\frac{11}{2}-\frac{1}{2}\sqrt{57}),(\frac{11}{2}+\frac{1}{2}\sqrt{57})$ (v) $(\frac{11}{2}-\frac{1}{2}\sqrt{171}),(\frac{11}{2}+\frac{1}{2}\sqrt{171})$

18. Solve : $36x^2 - 29abx + 5a^2b^2 = 0$

(i) $\frac{5ab}{9},\frac{ab}{4}$ (ii) $\frac{ab}{3},-\frac{ab}{4}$ (iii) $\frac{5ab}{7},\frac{ab}{2}$ (iv) $\frac{5ab}{11},\frac{ab}{6}$ (v) $\frac{7ab}{9},\frac{3ab}{4}$

19. Find the quadratic equation with roots $(4,4)$

(i) $(x^2-8x+16)=0$ (ii) $(x^2-10x+24)=0$ (iii) $(x^2-7x+12)=0$ (iv) $(x^2-9x+20)=0$

(v) $(x^2-5x+4)=0$

20. Solve : $14x^2b^2 + 3a^2xb - 2a^4 = 0$

(i) $\frac{2a^2}{5b},-\frac{a^2}{b}$ (ii) $\frac{2a^2}{9b},-\frac{a^2}{4b}$ (iii) $0,-\frac{3a^2}{2b}$ (iv) $\frac{4a^2}{7b},\frac{a^2}{2b}$ (v) $\frac{2a^2}{7b},-\frac{a^2}{2b}$

21. Solve : $\frac{(x+3)}{(2x+1)}=\frac{(3x+1)}{(4x+5)}$

(i) (1,-7) (ii) (-1,7) (iii) (-4,4) (iv) (1,10) (v) (-2,6)

22. Solve : $32x^2 - 36ax + 9a^2 = 0$

(i) $\frac{a}{2},\frac{3a}{10}$ (ii) $\frac{a}{4},\frac{a}{8}$ (iii) $\frac{5a}{4},\frac{5a}{8}$ (iv) $\frac{3a}{2},\frac{a}{2}$ (v) $\frac{3a}{4},\frac{3a}{8}$

23. Solve : $(x^4-12x^2+36)=0$

(i) $\sqrt{9},(-\sqrt{8}),\sqrt{9},(-\sqrt{9})$ (ii) $6,(-6),6,(-6)$ (iii) $\sqrt{6},(-\sqrt{6}),\sqrt{6},(-\sqrt{6})$ (iv) $\sqrt{4},(-\sqrt{4}),\sqrt{4},(-\sqrt{3})$

(v) $\sqrt[4]{6},(-\sqrt[4]{6}),\sqrt[4]{6},(-\sqrt[4]{6})$

24. Solve : $40x^2b - 16xb - 5x + 2 = 0$

(i) $\frac{4}{5},\frac{3}{8b}$ (ii) $\frac{2}{5},\frac{1}{8b}$ (iii) $0,-\frac{1}{8b}$ (iv) $\frac{2}{3},\frac{1}{6b}$ (v) $\frac{2}{7},\frac{1}{10b}$

25. The product of the roots of the quadratic equation $(x^2+15x+54)=0$ is

(i) 53 (ii) 54 (iii) 55 (iv) 56 (v) 51

Assignment Key

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