EduSahara™ Worksheet

Name : Chapter Based Worksheet

Chapter : Quadratic Equations

Grade : SSC Grade X

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1. Find the number which exceeds its reciprocal by $11\frac{11}{12}$

   (i) 13 (ii) 14 (iii) 12 (iv) 11 (v) 9

2. Solve : $14x^2a^4b^2 - 19xa^2b + 6 = 0$

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

3. Solve : $\frac{(2x+3)}{(2x+1)} + \frac{(x+2)}{(x-3)} = \frac{103}{22}$

   (i) $(\frac{-31}{118}, 5)$ (ii) $(\frac{-31}{120}, 6)$ (iii) $(\frac{-29}{118}, 8)$ (iv) $(\frac{-33}{118}, 2)$ (v) $(\frac{-31}{116}, 4)$

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

   (i) 80 (ii) 82 (iii) 79 (iv) 81 (v) 83

5. Find the discriminant of the quadratic equation $(8x^2 - 14x + 6) = 0$

   (i) 6 (ii) 3 (iii) 4 (iv) 2 (v) 5

6. Twice the square of a number exceeds 5 times the number by 627. Find the number

   (i) 20 (ii) 22 (iii) 17 (iv) 19 (v) 18

7. In a two digit number, the unit's digit exceeds it ten's digit by 2 and the product of the given number and the sum of its digits is equal to 52 . Find the number

   (i) 35 (ii) 24 (iii) 46 (iv) 13

8. Solve : $\sqrt{(3x^2 + 20x - 63)} = (x + 4)$

   (i) $(-3 - \frac{1}{2}\sqrt{194}), (-3 + \frac{1}{2}\sqrt{194})$ (ii) $(-3\sqrt{5} - \frac{1}{2}\sqrt{194}), (-3\sqrt{5} + \frac{1}{2}\sqrt{194})$ (iii) $(-3 - \frac{1}{2}\sqrt{582}), (-3 + \frac{1}{2}\sqrt{582})$

   (iv) $(-3\sqrt{4} - \frac{1}{2}\sqrt{194}), (-3\sqrt{4} + \frac{1}{2}\sqrt{194})$ (v) $(-3 - \frac{1}{2}\sqrt{388}), (-3 + \frac{1}{2}\sqrt{388})$

9. Find the roots of the quadratic equation $(x^2 + 7x + 6) = 0$

   (i) (-1,-6) (ii) (0,-7) (iii) (0,-6) (iv) (2,-7) (v) (2,-9)

10. Solve : $8x^2b^2 + 2axb - 3a^2 = 0$

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

11. The sum of the squares of two consecutive odd numbers is 130. Find the numbers

(i) 7 , 9 or (-7) , (-9) (ii) $8, 10 \text{ or } (-8), (-10)$ (iii) $4, 6 \text{ or } (-4), (-6)$ (iv) $10, 12 \text{ or } (-10), (-12)$ (v) $6, 8 \text{ or } (-6), (-8)$

12. Three consecutive natural numbers are such that the square of the middle number exceeds the difference of the squares of the other two by 285 . Find the three numbers.

(i) 17, 18, 19 (ii) 21, 22, 23 (iii) 15, 16, 17 (iv) 18, 19, 20 (v) 19, 20, 21

13. If the difference of two numbers is 1 and their product is 42, find the numbers

(i) $(-5), (-6) \text{ or } 5, 6$ (ii) $(-6), (-7) \text{ or } 6, 7$ (iii) $(-4), (-5) \text{ or } 4, 5$ (iv) $(-9), (-9) \text{ or } 9, 9$ (v) $(-7), (-8) \text{ or } 7, 8$

14. 76 is divided into two parts such that the sum of their reciprocals is $\frac{76}{1323}$.

Find the two parts

(i) (25,51) (ii) (27,49) (iii) (26,50) (iv) (29,47) (v) (28,48)

15. Find the roots of the quadratic equation $(x^2 - 10x + 9) = 0$

(i) (12,-2) (ii) (10,1) (iii) (9,1) (iv) (10,0) (v) (12,0)

16. Solve : $(x^2 - 6x)^2 - 8(x^2 - 6x) + 15 = 0$

(i) $(3+\sqrt{14}), (3-\sqrt{14}), (3+2\sqrt{3}), (3-2\sqrt{3})$ (ii) $(3+14), (3-14), (3+6), (3-6)$

(iii) $(3+\sqrt[4]{14}), (3-\sqrt[4]{14}), (3+2\sqrt[4]{3}), (3-2\sqrt[4]{3})$ (iv) $(1+\sqrt{14}), (1-\sqrt{14}), (1+2\sqrt{3}), (1-2\sqrt{3})$

(v) $(5+\sqrt{14}), (6-\sqrt{14}), (6+2\sqrt{3}), (6-2\sqrt{3})$

17. A play field is 110.00 m by 90.00 m . It has a road all around it on the outside. Find the width of the road if its area is $\frac{49}{44}$ of the area of the play field

(i) 20.50 m (ii) 21.50 m (iii) 23.50 m (iv) 24.50 m (v) 22.50 m

18. Solve : $10x^2 - 3abx - a^2b^2 = 0$

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

19. The denominator of a fraction exceeds the numerator by 2.
The square of the fraction is equal to $\frac{4}{9}$. Find the fraction

(i) $\frac{1}{2}$ (ii) 1 (iii) $\frac{1}{3}$ (iv) $\frac{2}{3}$

20. One pipe can fill a cistern in 9 hours less than the other.
The two pipes together can fill it in $10\frac{4}{5}$ hrs.
Find the time that each pipe will take to fill the cistern.

(i) 18 hr , 27 hr (ii) 17 hr , 26 hr (iii) 21 hr , 29 hr (iv) 19 hr , 28 hr (v) 16 hr , 24 hr

21. Solve the quadratic equation $x - \frac{45}{x} = 4$

(i) $(10,-5)$ (ii) $(10,-6)$ (iii) $(12,-8)$ (iv) $(9,-5)$ (v) $(12,-6)$

22. A two digit number is such that the product of the digits is 45. When 36 is subtracted from the number, the digits are reversed. Find the number

(i) 95 (ii) 98 (iii) 96 (iv) 92 (v) 94

23. Find two natural numbers which differ by 6 and the sum of whose squares is 3380

(i) $(37,43)$ (ii) $(38,44)$ (iii) $(35,42)$ (iv) $(40,47)$ (v) $(39,45)$

24. The sum of the ages of a father and his son is 63 years whereas nine years ago, the product of their ages was 324. Find the current ages of the son and the father.

(i) 16 years , 47 years (ii) 17 years , 46 years (iii) 18 years , 45 years (iv) 19 years , 44 years

(v) 20 years , 43 years

25. Solve : $\frac{2}{(x-5)} - \frac{1}{(-x-3)} = 2$

(i) $5,(-3)$ (ii) $5\sqrt{5},(-3\sqrt{5})$ (iii) $5\sqrt{4},(-3\sqrt{4})$ (iv) $5\sqrt{3},(-3\sqrt{3})$ (v) $5\sqrt{2},(-3\sqrt{2})$

Assignment Key

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

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