

Lesson 1: Basic Quadratic Equations

Direction: Solve for x.

1. $x^2 - 3 = 24$
2. $x^2 - 3 = 61$
3. $x^2 - 6 = 19$
4. $x^2 + 2 = 27$
5. $x^2 - 6 = 43$
6. $x^2 + 5 = 30$
7. $-5x^2 = -45$
8. $-5x^2 = -310$
9. $4x^2 = 212$
10. $x^2 + 3 = 62$
11. $-4 - 8x^2 = -12$
12. $9x^2 + 5 = 149$
13. $7x^2 - 1 = 363$
14. $3x^2 - 1 = 269$
15. $-7 + 64x^2 = 42$
16. $20x^2 - 7 = 13$
17. $9x^2 + 3 = 993$
18. $14x^2 - 7 = 4697$
19. $16x^2 + 12 = 373$
20. $196x^2 - 4 = 320$

Lesson 2: Solving Quadratic Equations by Factoring

Direction: Solve for x.

1. $(x - 4)(x - 3) = 0$
2. $(5x - 1)(x + 1) = 0$
3. $(x + 5)^2 = 0$
4. $(x - 4)(3x - 5) = 0$
5. $(x + 2)^2 = 0$
6. $x^2 + 2x = 8$
7. $x^2 = 4 - 3x$
8. $2x^2 + 2x = 4$
9. $x^2 - 9x = -18$
10. $2x^2 - 22x = -56$
11. $2x^2 = 2$
12. $x^2 = -2x$
13. $x^2 = 6x$
14. $2x^2 - 4x = 30$
15. $x^2 = -4x + 12$

16. $14x^2 + 16x + 8 = -7x$
17. $-x^2 - 24x + 16 = -6x^2$
18. $7x^2 = -35 + 54x$
19. $14x^2 - 28x - 245 = -7x$
20. $2x^2 + 15x = 6x + 5$

Lesson 3: Solving Quadratic Equations by Completing the Square

Directions: Solve for x.

1. $x^2 - 4x - 21 = 0$
2. $x^2 + 12x - 43 = 0$
3. $x^2 - 16x + 28 = 0$
4. $x^2 + 12x - 40 = 0$
5. $x^2 + 16x + 6 = 0$
6. $x^2 + 8x + 7 = 0$
7. $x^2 + 6x - 7 = 0$
8. $x^2 - 8x - 2 = 0$
9. $x^2 - 4x + 3 = 0$
10. $x^2 - 14x - 55 = 0$
11. $8x^2 - 16x - 34 = -10$
12. $x^2 + 4x - 25 = -10$
13. $2x^2 + 20x + 62 = -7$
14. $x^2 + 8x - 82 = -6$
15. $x^2 - 2x - 104 = -5$
16. $-9x^2 - 23x + 67 = -11x^2 + 4$
17. $7x^2 + 16x = 4x^2 + 54$
18. $2x^2 + 3x = 8x - 74$
19. $10x^2 + 10x + 121 = 3x + 3x^2$
20. $x^2 - 14x + 75 = -5x$

Lesson 4: Solving Quadratic Equations by the Quadratic Formula

Directions: Solve for x.

1. $2x^2 - 5x + 2 = 0$
2. $x^2 + 2x - 3 = 0$
3. $x^2 + 4x - 12 = 0$
4. $x^2 + 3x - 10 = 0$
5. $2x^2 - 3x - 14 = 0$
6. $2x^2 + 3x - 20 = 0$
7. $2x^2 + 4x - 16 = 0$
8. $x^2 - x - 2 = 0$
9. $x^2 + 3x + 2 = 0$
10. $x^2 - 3x - 18 = 0$

11. $x^2 - 81 = 0$
12. $10x^2 + 4x = 4$
13. $3x^2 - 3x = -5$
14. $2x^2 = 8$
15. $10x^2 - 8 = 9x$
16. $-6x^2 = -3x^2 - 2$
17. $-3x^2 - 5x - 5 = -2x$
18. $15x^2 + 3 = 5x^2 + 5$
19. $x^2 - 8x + 9 = -2x^2$
20. $12x^2 - 3x + 7 = 7x^2 - x$

Lesson 5: Discriminants

Directions: Find the discriminant and the nature of the roots.

1. $6x^2 + 5x + 1 = 0$
2. $-3x^2 + 2x - 4 = 0$
3. $x^2 - 3x + 1 = 0$
4. $-6x^2 + 6x - 6 = 0$
5. $-3x^2 - 5x + 3 = 0$
6. $4x^2 - 8x - 1 = -5$
7. $-4x^2 - 9x + 4 = 9$
8. $4x^2 + 7x - 9 = -9$
9. $-8x^2 + 6x = 10$
10. $-3x^2 - 6x + 3 = 6$
11. $5x^2 - 6x - 6 = 2$
12. $-x^2 + 2x + 4 = 5$
13. $-4x^2 - 4x - 4 = -3$
14. $4x^2 - 2x - 13 = -7$
15. $8x^2 - 4x - 3 = -8$
16. $-x^2 - 2x = 1$
17. $-9x^2 - 2x + 20 = 7 - 5x$
18. $-8x^2 + 18x + 8 = 11x$
19. $-8x^2 - 19x + 7 = -10x$
20. $-5x^2 + 12 = 12x - 3x^2$

Lesson 6: Sum and Products of Roots

Directions: Find the sum and products of the roots of the equations below.

1. $2x^2 + 3x + 1 = 0$
2. $2x^2 - 3x - 2 = 0$
3. $2x^2 + 3x - 5 = 0$
4. $2x^2 - 4x - 16 = 0$

5. $2x^2 - 4x - 6 = 0$
6. $x^2 - 2x - 8 = 0$
7. $x^2 + 3x - 10 = 0$
8. $2x^2 - 5x - 7 = 0$
9. $2x^2 - x - 3 = 0$
10. $x^2 - 4x + 4 = 0$
11. $5x^2 + 3 = 0$
12. $9x^2 + 1 = -x$
13. $7x^2 = -10x - 8$
14. $2x^2 = 36 - x$
15. $2x^2 = -2 - 7x$
16. $4x^2 + x + 4 = -9$
17. $4x^2 + 8x - 6 = 10$
18. $2x^2 - 10 + 9x = 9x + 3x^2$
19. $x^2 - 13 = 0$
20. $-2x^2 + 2x = -16$