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1. The following exercise is a mix of linear and quadratic equations. Solve each equation using an appropriate technique.
2. Questions:
3. 4x + 3 = 2x + 9
4. 5x² = 3x
5. 50 - x² = 25 - x - x²
6. x² - 11x - 12 = 0
7. x² + 10x = 0
8. 3(3x + 5) + 6 = 3
9. (y + 2)² = y² + 13
10. 8x² - 2x - 3 = 0
11. 3x² + 27x + 42 = 0
12. 2x - 9 = x/4
13. (a + 2)(a - 4) = (a + 3)²
14. 6x² = x + 2
15. (x - 3)(x + 5) = -16
16. (b + 5)² = (b + 1)²
17. x³ - 6x² + 8x = 0
18. 4x(x + 1) = 3
19. (2y + 3)² = (y + 1)(y - 3) + 3y²
20. -2x² = -8x + 6
21. (5m + 2)² - 1 = (m - 3)(m + 5) + 24m²
22. If you would like, I can help you solve any of these equations! Just let me know which ones you need assistance with.
23. . 4x + 3 = 2x + 9
24. Solution: x = 3
25. 2. 5x² = 3x
26. Solutions: x = 0 or x = 3/5
27. 3. 50 - x² = 25 - x - x²
28. Solution: x = 25/2
29. 4. x² - 11x - 12 = 0
30. Solutions: x = -1 or x = 12
31. 5. x² + 10x = 0
32. Solutions: x = 0 or x = -10
33. 6. 3(3x + 5) + 6 = 3
34. Solution: x = -2
35. 7. (y + 2)² = y² + 13
36. Solutions: y = 9/4 or y = -13/4
37. 8. 8x² - 2x - 3 = 0
38. Solutions: x = 3/4 or x = -1/2
39. 9. 3x² + 27x + 42 = 0
40. Solutions: x = -2 or x = -7
41. 10. 2x - 9 = x/4
42. Solution: x = 12
43. 11. (a + 2)(a - 4) = (a + 3)²
44. Solution: a = -11/4
45. 12. 6x² = x + 2
46. Solutions: x = 2/3 or x = -1/2
47. 13. (x - 3)(x + 5) = -16
48. Solutions: x = -1 or x = -2
49. 14. (b + 5)² = (b + 1)²
50. Solutions: b = -3
51. 15. x³ - 6x² + 8x = 0
52. Solutions: x = 0 or x = 2 or x = 4
53. 16. 4x(x + 1) = 3
54. Solutions: x = 3/4 or x = -1
55. 17. (2y + 3)² = (y + 1)(y - 3) + 3y²
56. Solution: y = 0
57. 18. -2x² = -8x + 6
58. Solutions: x = 1 or x = 3
59. 19. (5m + 2)² - 1 = (m - 3)(m + 5) + 24m²
60. Solutions: m = 0 or m = 1/2

 **4x + 3 = 2x + 9**: x = 3

 **5x² = 3x**: x = 0 or x = 3/5

 **50 - x² = 25 - x - x²**: x = 25

 **x² - 11x - 12 = 0**: x = 12 or x = -1

 **x² + 10x = 0**: x = 0 or x = -10

 **3(3x + 5) + 6 = 3**: x = -1

 **(y + 2)² = y² + 13**: y = ±√9 (y = 3 or y = -3)

 **8x² - 2x - 3 = 0**: x = 3/4 or x = -1/2

 **3x² + 27x + 42 = 0**: x = -7 or x = -2

 **2x - 9 = x/4**: x = 36/9 = 4

 **(a + 2)(a - 4) = (a + 3)²**: a = 1 or a = -7

 **6x² = x + 2**: x = 1/3 or x = -2/3

 **(x - 3)(x + 5) = -16**: x = 1 or x = -9

 **(b + 5)² = (b + 1)²**: b = -2 or b = -6

 **x³ - 6x² + 8x = 0**: x = 0, x = 2, or x = 4

 **4x(x + 1) = 3**: x = 0.5 or x = -3

 **(2y + 3)² = (y + 1)(y - 3) + 3y²**: y = 0 or y = -1

 **-2x² = -8x + 6**: x = 1 or x = -3

 **(5m + 2)² - 1 = (m - 3)(m + 5) + 24m²**: m = -1 or m = 3