

EXERCISE 4.1 (MORE DIFFICULT EQUATIONS - Yr 10 - Yr 11-2U)

Find the solution of the following conditional equations:

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| 1. $y - 2 = 7$ | 8. $16 = x + 1$ | 15. $30 - 8y = 70$ |
| 2. $5x = 40$ | 9. $6x - 24 = 0$ | 16. $5x - 2 = x + 17$ |
| 3. $x + 17 = 8$ | 10. $9y = -27$ | 17. $9a + 8 = 3a + 44$ |
| 4. $-3y = 21$ | 11. $8a - 2 = 46$ | 18. $12y - 3y = 4y + 30$ |
| 5. $x + 12 = 20$ | 12. $7m = 5m + 16$ | 19. $a + 2a - 6a = -15$ |
| 6. $-a = 8$ | 13. $28 = 12x - 5x$ | 20. $14x - 6x + 18 = 50$ |
| 7. $42 = 7x$ | 14. $11x + 17 = 39$ | |

Solve by first removing parentheses:

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|----------------------------|----------------------------------|
| 21. $4(x - 3) = 12$ | 29. $12(x - 1) = 2(4x + 14)$ |
| 22. $8(a + 6) = 72$ | 30. $8(3m + 2) = 4(5m + 10)$ |
| 23. $3(a - 12) = 2a$ | 31. $12 + 3x = 4(1 + x)$ |
| 24. $9y = 5(y + 8)$ | 32. $6(y - 1) = 3(y + 8)$ |
| 25. $7(2x - 3) = 9x$ | 33. $2(m - 4) + 3(m + 3) = 36$ |
| 26. $3(x + 6) = 2x + 40$ | 34. $172 - (y + 18) = 5(y + 20)$ |
| 27. $5(a - 3) = 2(a + 6)$ | 35. $40 - 5(7 - x) = 3(x + 1)$ |
| 28. $3(3y + 1) = 4(y + 8)$ | |

Multiply by the lowest common denominator to remove fractions and solve:

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|---|--|---|
| 36. $\frac{2x}{3} = 6$ | 45. $\frac{8}{x} = 4$ | 54. $\frac{3x + 4}{x} = 2$ |
| 37. $\frac{x + 2}{5} = 40$ | 46. $\frac{x}{2} - \frac{x}{3} = 1$ | 55. $\frac{x + 2}{2} = 4 - \frac{x - 3}{3}$ |
| 38. $\frac{x + 6}{5} = 3$ | 47. $\frac{x}{3} - 2 = \frac{x}{6} + \frac{15}{2}$ | 56. $\frac{3m}{5} - \frac{m - 2}{4} = 0$ |
| 39. $\frac{12}{x} = 3$ | 48. $\frac{4}{2x} = \frac{3}{4}$ | 57. $\frac{6}{x} + 2 = \frac{7}{2x} + 5$ |
| 40. $\frac{9y - 12}{6} = 7$ | 49. $\frac{x + 4}{2} = \frac{2x - 3}{3}$ | 58. $\frac{5x + 4}{3} = 3 - \frac{x}{2}$ |
| 41. $\frac{5x + 3}{x} = 2$ | 50. $\frac{a + 2}{3} = \frac{a}{2} - 2$ | 59. $\frac{1}{x} - \frac{1}{2x} + \frac{1}{3x} = 1$ |
| 42. $\frac{9}{2x} = 4 - \frac{3}{x}$ | 51. $\frac{t}{2} - \frac{3t - 4}{2} = 6$ | 60. $\frac{3}{x + 2} - \frac{2}{3} = 5$ |
| 43. $\frac{2m - 1}{3} = \frac{m}{2}$ | 52. $\frac{x + 1}{3} = \frac{x - 1}{2}$ | 61. $\frac{x}{x + 2} + \frac{4}{x + 6} = 1$ |
| 44. $\frac{x + 1}{x - 1} = \frac{2x + 4}{2x - 3}$ | 53. $\frac{2x - 1}{2x + 3} = \frac{x + 2}{x - 1}$ | 62. $\frac{4 - 3x}{1 + 3x} = \frac{x + 6}{1 - x}$ |

EXERCISE 4.1 (Page 43) ANSWERS

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|------------------------|--------------|--------------|------------------------|-------------------------|--------------------------|
| 1. $y = 9$ | 2. $x = 8$ | 3. $x = -9$ | 31. $x = 8$ | 32. $y = 10$ | 33. $m = 7$ |
| 4. $y = -7$ | 5. $x = 8$ | 6. $a = -8$ | 34. $y = 9$ | 35. $x = -1$ | 36. $x = 9$ |
| 7. $x = 6$ | 8. $x = 15$ | 9. $x = 4$ | 37. $x = 198$ | 38. $x = 9$ | 39. $x = 4$ |
| 10. $y = -3$ | 11. $a = 6$ | 12. $m = 8$ | 40. $y = 6$ | 41. $x = -1$ | 42. $x = 1\frac{7}{8}$ |
| 13. $x = 4$ | 14. $x = 2$ | 15. $y = -5$ | 43. $m = 2$ | 44. $x = \frac{1}{3}$ | 45. $x = 2$ |
| 16. $x = 4\frac{3}{4}$ | 17. $a = 6$ | 18. $y = 6$ | 46. $x = 6$ | 47. $x = 57$ | 48. $x = 2\frac{2}{3}$ |
| 19. $a = 5$ | 20. $x = 4$ | 21. $x = 6$ | 49. $x = 18$ | 50. $a = 16$ | 51. $t = -4$ |
| 22. $a = 3$ | 23. $a = 36$ | 24. $y = 10$ | 52. $x = 5$ | 53. $x = -\frac{1}{2}$ | 54. $x = -4$ |
| 25. $x = 4\frac{1}{3}$ | 26. $x = 22$ | 27. $a = 9$ | 55. $x = 4\frac{1}{2}$ | 56. $m = -1\frac{7}{8}$ | 57. $x = \frac{5}{6}$ |
| 28. $y = 5\frac{1}{2}$ | 29. $x = 10$ | 30. $m = 6$ | 58. $x = \frac{13}{3}$ | 59. $x = \frac{5}{6}$ | 60. $x = -1\frac{8}{17}$ |
| | | | 61. $x = 2$ | 62. $x = -\frac{1}{13}$ | |