

## EXERCISE 4.1 (MORE DIFFICULT EQUATIONS - Yr 10 - 1/11-20)

Find the solution of the following conditional equations:

- |                  |                     |                          |
|------------------|---------------------|--------------------------|
| 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:

- |                            |                                  |
|----------------------------|----------------------------------|
| 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:

- |   |  |   |
|---|--|---|
| 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

- |                        |              |              |                         |                         |                          |
|------------------------|--------------|--------------|-------------------------|-------------------------|--------------------------|
| 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. $x = 1\frac{1}{3}$   |
| 13. $x = 4$            | 14. $x = 2$  | 15. $y = -5$ | 43. $m = 2$             | 44. $x = \frac{1}{3}$   | 45. $x = 2$              |
| 16. $x = 4\frac{1}{2}$ | 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. $x = 4\frac{1}{2}$ | 26. $x = 22$ | 27. $a = 9$  | 55. $x = -4\frac{1}{3}$ | 56. $m = -1\frac{1}{3}$ | 57. $x = \frac{2}{3}$    |
| 28. $y = 5\frac{1}{2}$ | 29. $x = 10$ | 30. $m = 6$  | 58. $x = \frac{10}{3}$  | 59. $x = \frac{5}{6}$   | 60. $x = -1\frac{8}{17}$ |
|                        |              |              | 61. $x = 2$             | 62. $x = -\frac{1}{13}$ |                          |

(

(