Exercise 6.2

answers on p. 428

[05-12-13-N7]

1. The following are four groups of equivalent equations. State, in each group, how the first equation can be converted to the second and the second to the third.

(a) $6x + 3 = 5 + x$
$5x + 3 = 5$
$5x = 2$

(b) $3x - 4 = 14 - 3x$
$6x - 4 = 14$
$6x = 18$

(c) $3(2x - 5) = 12$
$2x - 5 = 4$
$2x = 9$

(d) $3[(x - 5) + 2x] = 0$
$x - 5 + 2x = 0$
$x + 2x = 5$

2. Find the solution of each of the following equations.

(a) $3x - 13 = 26$ **(b)** $3x - 7 = 32$ **(c)** $4y - 9 = -5$
(d) $8 + 3a = 11$ **(e)** $8 + 2x = 14$ **(f)** $y + 6 = 18$
(g) $8x + 4 = 12$ **(h)** $2x - 10 = 8$ **(i)** $3x + 6 = 1$
(j) $x + 4 = 60$ **(k)** $2a + 45 = 0$ **(l)** $7y + 3 = y + 18$
(m) $x + 3 = 18 - 3x$ **(n)** $2y - 2 = 4 - y$ **(o)** $5x - 4 = 2x + 11$
(p) $4x = 7 + 3x$

3. Solve the following equations.

(a) $3(x + 2) + 7(x - 1) = 12$ **(b)** $5(x + 1) + 3(x - 1) = 5$
(c) $4(x - 1) - (x + 3) = 0$ **(d)** $3(1 - x) + 4(x - 5) = 10$
(e) $28(x - 3) - (x - 3) = 0$ **(f)** $9(x - 4) + (2 + 8x) = 0$
(g) $3x + 3(x - 3) - (4 - 4x) = 0$ **(h)** $3(2x - 3) - (2x + 2) = x - 3$
(i) $3y + 6(y + 3) - (8y - 16) = 60$ **(j)** $3 + (4 + 4p) = 6(4 - p)$
(k) $3(u - 3) - 3(4 + u) = 5 + u$ **(l)** $5 - 3(q - 7) = 2(2 - q) - 8$

(m) $5(3 - s) - 4(s - 3) = 5 - 4s$ **(n)** $x(3 + x) - 3(1 + 2x) = 3 + x^2$
(o) $n(3n - 3) - 5(3 + n) = 3n^2 + 2n + 3$
(p) $w^2 - w(w - 3) = 12(1 + w)$

4. Solve these equations.

(a) $x^2 - 3 = 1$ **(b)** $2x^2 + 5 = 23$ **(c)** $2x^2 + 7 = 55 - x^2$
(d) $2(x^2 + 1) = 52$ **(e)** $2(x^2 - 9) = 90 - x^2$ **(f)** $(x - 1)^2 = 4$

Exercise 6.3

answers on p. 428

Solve the following equations.

1. $\frac{1}{2}y + 3 = 9$

2. $\frac{1}{4}(8x + 4) = 3$

3. $\frac{1}{3}(3x + 9) = 2x + 3$

4. $\frac{2}{5}(2x + 3) = x + 1$

5. $\frac{1}{3}(x + 4) = 20$

6. $\frac{2}{5}a + 9 = 0$

7. $\frac{3}{5}y - \frac{2}{5} = \frac{4}{5}$

8. $\frac{1}{2}(5x - 4) = x + \frac{11}{2}$

9. $\frac{4}{3}x = \frac{7}{3} + x$

10. $\frac{y}{2} - \frac{4y}{5} = 3$

11. $\frac{9}{10}a + 7 = \frac{4}{5}a$

12. $\frac{m}{6} - \frac{m}{4} + \frac{m}{5} = 2$

13. $\frac{1}{2}(x - 1) + \frac{3}{4}(x + 3) = 0$

14. $\frac{2}{3}(7 - x) + \frac{1}{4}(x + 2) = 0$

15. $\frac{3}{4}(x + 4) - \frac{5}{6}\left(\frac{1}{4} - x\right) = 0$

16. $\frac{1}{6}(4 - p) - \frac{3}{4}(1 + p) = \frac{1}{4}$

17. $6.2x - 1.3 = 5.2$

18. $4.7y - 3 = 0.2$

19. $1.41 - 1.2x = 1.02$

20. $1.12x - 4.1 = 0.12$

21. $6.4z - 3 = z + 1.2$

22. $6.1x = 6 + 1.3x$

23. $3(1.4x - 1) = 3.3x + 1.2$

24. $1.2(1 - x) = 8.1 + 3.5x$

25. $\frac{3x - 1}{4} + \frac{x + 3}{8} = 0$

26. $\frac{x + 2}{6} - \frac{3x - 5}{4} = 0$

27. $\frac{2 - y}{8} - \frac{3(2 + y)}{4} = 0$

28. $\frac{3(x + 2)}{4} - \frac{5(1 - x)}{6} = 1$

***29.** $\frac{1}{x} - 1 = \frac{1}{3}$

***30.** $\frac{1}{x} + 1 = \frac{3}{x} + \frac{1}{2}$