Chapter 2 Review

Pages 76–77

1. $x + 7 = -16; x + 7 - 7 = -16 - 7; x = -23$
The correct answer is A.

2. $3.4m - 2.4m + 10 = -8.2; m + 10 = -8.2;$
$m + 10 - 10 = -8.2 - 10; m = -18.2$
The correct answer is A.

3. $-4n = -12; \dfrac{-4n}{-4} = \dfrac{-12}{-4}; n = 3$
The correct answer is D.

4. $\dfrac{2}{3}y = -18; \dfrac{\cancel{3}}{\cancel{2}} \cdot \dfrac{\cancel{2}}{\cancel{3}}y = \dfrac{3}{\cancel{2}} \cdot (\cancel{-18}); y = -27$
The correct answer is A.

5. $24p = 30.96; \dfrac{24p}{24} = \dfrac{30.96}{24}; p = 1.29;$ The unit price
per can is \$1.29.
The correct answer is B.

6. Let p represent the amount each person pays:
$4p = 49.60; \dfrac{4p}{4} = \dfrac{49.60}{4}; p = 12.4.$ Each
person pays \$12.40.
The correct answer is B.

7. $-4x - 6 = -34; -4x - 6 + 6 = -34 + 6;$
$-4x = -28; \dfrac{-4x}{-4} = \dfrac{-28}{-4}; x = 7$
The correct answer is C.

8. $0.2(6r - 5) = 8; 0.2 \cdot 6r - 0.2 \cdot 5 = 8; 1.2r - 1 = 8;$
$1.2r - 1 + 1 = 8 + 1; 1.2r = 9; \dfrac{1.2r}{1.2} = \dfrac{9}{1.2}; r = 7.5$
The correct answer is B.

9. $8q - 6 = 5q + 15; 8q - 5q - 6 = 5q - 5q + 15;$
$3q - 6 = 15; 3q - 6 + 6 = 15 + 6; 3q = 21;$
$\dfrac{3q}{3} = \dfrac{21}{3}; q = 7$
The correct answer is D.

10. $4b - 10 = 2(2b - 5); 4b - 10 = 2 \cdot 2b - 2 \cdot 5;$
$4b - 10 = 4b - 10;$ Since the variable terms and
the constant terms are the same on both sides of the
equation, the equation has an infinite number of
solutions.
The correct answer is C.

11. $x + 4 = -15; x + 4 - 4 = -15 - 4; x = -19$

12. $24 = 9 - y; 24 + y = 9 - y + y; 24 + y = 9;$
$24 - 24 + y = 9 - 24; y = -15$

13. $6 + 0.2c + 0.8c = 14; 6 + c = 14; 6 - 6 + c = 14 - 6;$
$c = 8$

14. $\dfrac{1}{4}d + \dfrac{3}{4}(d + 16) = -5; \dfrac{1}{4}d + \dfrac{3}{4}d + \dfrac{3}{4} \cdot 16 = -5;$
$d + \dfrac{3}{\cancel{4}} \cdot \overset{4}{\cancel{16}} = -5; d + 12 = -5;$
$d + 12 - 12 = -5 - 12; d = -17$

15. $\dfrac{g}{-3} = 14; -3 \cdot \dfrac{g}{-3} = -3 \cdot 14; g = -42$

16. $4b = -56; \dfrac{4b}{4} = \dfrac{-56}{4}; b = -14$

17. $\dfrac{5m}{3} = 25; \dfrac{3}{5} \cdot \dfrac{5m}{3} = \dfrac{3}{5} \cdot 25; \dfrac{\cancel{3}}{\cancel{5}} \cdot \dfrac{\cancel{5}m}{\cancel{3}} = \dfrac{3}{\cancel{5}} \cdot \overset{5}{\cancel{25}}; m = 15$

18. $\dfrac{3}{4}n = -18; \dfrac{4}{3} \cdot \dfrac{3}{4}n = \dfrac{4}{3} \cdot (-18); \dfrac{\cancel{4}}{\cancel{3}} \cdot \dfrac{\cancel{3}}{\cancel{4}}n = \dfrac{4}{\cancel{3}} \cdot (\cancel{-18});$
$n = -24$

19. $5.6f = 16.8; \dfrac{5.6f}{5.6} = \dfrac{16.8}{5.6}; f = 3$

20. $4(3x - 5) + 2x = 8; 4 \cdot 3x - 4 \cdot 5 + 2x = 8;$
$12x - 20 + 2x = 8; 12x + 2x - 20 = 8; 14x - 20 = 8;$
$14x - 20 + 20 = 8 + 20; 14x = 28; \dfrac{14x}{14} = \dfrac{28}{14}; x = 2$

21. $-\dfrac{3}{5}(10h + 25) = 9; -\dfrac{3}{5} \cdot 10h + \left(-\dfrac{3}{5}\right) \cdot 25 = 9;$
$-\dfrac{3}{\cancel{5}} \cdot \overset{2}{\cancel{10}}h + \left(-\dfrac{3}{\cancel{5}}\right) \cdot \overset{5}{\cancel{25}} = 9; -6h - 15 = 9;$
$-6h - 15 + 15 = 9 + 15; -6h = 24; \dfrac{-6h}{-6} = \dfrac{24}{-6};$
$h = -4$

22. $4y - 3 = 8y + 21; 4y - 8y - 3 = 8y - 8y + 21;$
$-4y - 3 = 21; -4y - 3 + 3 = 21 + 3; -4y = 24;$
$\dfrac{-4y}{-4} = \dfrac{24}{-4}; y = -6$

23. $12.6j + 8 = 10.2j + 4.4;$
$12.6j - 10.2j + 8 = 10.2j - 10.2j + 4.4;$
$2.4j + 8 = 4.4; 2.4j + 8 - 8 = 4.4 - 8;$
$2.4j = -3.6; \dfrac{2.4j}{2.4} = \dfrac{-3.6}{2.4}; j = -1.5$

24. $\frac{1}{6}n + 4 = \frac{1}{3}\left(\frac{1}{2}n + 15\right)$; $\frac{1}{6}n + 4 = \frac{1}{3} \cdot \frac{1}{2}n + \frac{1}{3} \cdot 15$;

$\frac{1}{6}n + 4 = \frac{1}{6}n + \frac{1}{3} \cdot 15$; $\frac{1}{6}n + 4 = \frac{1}{6}n + \frac{1}{3} \cdot 15$;

$\frac{1}{6}n + 4 = \frac{1}{6}n + 5$; Since the variable terms on both sides of the equation are the same but the constant terms are different, the equation has no solution.

25. $\frac{1}{8}g + \frac{3}{4} = \frac{3}{8}g - \frac{1}{2}$; $\frac{1}{8}g - \frac{3}{8}g + \frac{3}{4} = \frac{3}{8}g - \frac{3}{8}g - \frac{1}{2}$;

$-\frac{2}{8}g + \frac{3}{4} = -\frac{1}{2}$; $-\frac{1}{4}g + \frac{3}{4} = -\frac{1}{2}$;

$-\frac{1}{4}g + \frac{3}{4} - \frac{3}{4} = -\frac{1}{2} - \frac{3}{4}$; $-\frac{1}{4}g = -\frac{1}{2} - \frac{3}{4}$;

$-\frac{1}{4}g = -\frac{2}{4} - \frac{3}{4}$; $-\frac{1}{4}g = -\frac{5}{4}$;

$-\frac{4}{1}\left(-\frac{1}{4}\right)g = -\frac{4}{1}\left(-\frac{5}{4}\right)$; $-\frac{\cancel{4}}{1}\left(-\frac{1}{\cancel{4}}\right)g = -\frac{\cancel{4}}{1}\left(-\frac{5}{\cancel{4}}\right)$;

$g = 5$

26.

(a) Let p represent the number of 2 in. paintbrushes purchased. Since the painter bought 20 paintbrushes, $20 - p$ represents the number of 4 in. paintbrushes the painter purchased.

(b) $2.39p + 3.57(20 - p) = 65.5$

(c) $2.39p + 3.57(20 - p) = 65.5$;
$2.39p + 3.57 \cdot 20 - 3.57 \cdot p = 65.5$;
$2.39p + 71.4 - 3.57p = 65.5$;
$2.39p - 3.57p + 71.4 = 65.5$; $-1.18p + 71.4 = 65.5$;
$-1.18p + 71.4 - 71.4 = 65.5 - 71.4$;
$-1.18p = -5.9$; $\frac{-1.18p}{-1.18} = \frac{-5.9}{-1.18}$; $p = 5$

(d) The painter bought five 2 in. paintbrushes and $20 - 5 = 15$, or fifteen 4 in. paintbrushes.

27.

(a) Let a represent the number of laps that Andrew walked. Since Kyle walked 2 fewer laps than Andrew did, $a - 2$ represents the number of laps that Kyle walked.

(b) $4a = 6(a - 2)$

(c) $4a = 6(a - 2)$; $4a = 6 \cdot a - 6 \cdot 2$; $4a = 6a - 12$;
$4a - 6a = 6a - 6a - 12$; $-2a = -12$; $\frac{-2a}{-2} = \frac{-12}{-2}$;
$a = 6$

(d) Andrew completed 6 laps; Kyle completed $6 - 2 = 4$ laps.