

Unit 2 Study Guide

1. $x + x + 1 + x + 2 = -30$

$$3x + 3 = -30$$

$$3x = -33$$

$$x = -11$$

$$\boxed{-11, -10, -9}$$

2. $4k + mn = n - 3$, for n

$$-4k \quad -4k$$

$$mn = n - 3 - 4k$$

$$-n \quad -n$$

$$mn - n = -3 - 4k$$

$$n(m - 1) = -3 - 4k$$

$$\boxed{n = \frac{-3 - 4k}{m - 1}}$$

3. $17 = \frac{221}{g}$

$$17g = 221$$

$$g = \boxed{13 \text{ games}}$$

4. $333.5 = 29g$

$$\boxed{11.5 \text{ gallons}} = g$$

5. $\frac{c}{d} + 2 = \frac{f}{g}$, for c

$$\frac{c}{d} - \frac{f}{g} = -2$$

$$\boxed{c = d \left(\frac{f}{g} - 2 \right)}$$

6. $3ab - 2bc = 12$, for c

$$-2bc = 12 - 3ab$$

$$c = \frac{12 - 3ab}{-2b}$$

7. $a = lw$

$$180 = l(12)$$

$$15 \text{ ft.} = l$$

8. $Z = \left(\frac{x+y}{3}\right)w$ for y

$$\frac{Z}{w} = \frac{x+y}{3}$$

$$\frac{Z}{w} = \frac{x+y}{3}$$

$$\frac{3Z}{w} = x+y$$

$$\frac{3Z}{w} - x = y$$

9. $-3(m - 2n) = 5$, for m

$$-3m + 6n = 5$$

$$-3m = 5 - 6n$$

$$m = \frac{5 - 6n}{-3}$$

10. $A = \frac{1}{2}bcd + bc$, for d

$$A - bc = \frac{1}{2}bcd$$

$$\frac{2A - 2bc}{bc} = d$$

$$11. a = lw$$

$$161 = 14w$$

$$\boxed{11.5 \text{ cm} = w}$$

$$12. 6 + 3.5p + 5.5p = 51$$

$$6 + 9p = 51$$

$$9p = 45$$

$$p = \boxed{5 \text{ people}}$$

$$13. 5n - 18 - 4n = -36$$

$$n - 18 = -36$$

$$\boxed{n = -18}$$

$$14. 6(3N + 5) = 66$$

$$3N + 5 = 11$$

$$3N = 6$$

$$\boxed{N = 2}$$

$$15. 3(4y - 8) = 12$$

$$4y - 8 = 4$$

$$4y = 12$$

$$\boxed{y = 3}$$

$$16. -5(x - 3) = -25$$

$$x - 3 = 5$$

$$\boxed{x = 8}$$

$$17. 42 = 3(2 - 3h)$$

$$14 = 2 - 3h$$

$$12 = -3h$$

$$\boxed{-4 = h}$$

$$18. -10 = 5(2w - 4)$$

$$-2 = 2w - 4$$

$$2 = 2w$$

$$\boxed{1 = w}$$

$$19. 3p - 4 = 31$$

$$3p = 35$$

$$p = 35/3 = \boxed{11\frac{2}{3}}$$

$$20. -15 = 5(3q - 10) - 5q$$

$$-15 = 15q - 50 - 5q$$

$$-15 = 10q - 50$$

$$35 = 10q$$

$$q = 35/10 = 7/2 = \boxed{3.5}$$

$$21. x - 2(x + 10) = 12$$

$$x - 2x - 20 = 12$$

$$-x - 20 = 12$$

$$-x = 32$$

$$\boxed{x = -32}$$

$$22. 15 + 4x = 54$$

$$4x = 39$$

$$x = \boxed{\$9.75}$$

$$23. \frac{x}{3} - \frac{1}{2} = \frac{3}{4}$$

$$x - \frac{5}{4}$$

$$3 - 4$$

$$x = 15/4 = \boxed{3\frac{3}{4}}$$

$$24. \frac{9}{5} + \frac{5}{6} = 6$$

$$\frac{9}{5} = 6 - \frac{5}{6}$$

$$9 = \frac{155}{6} = \boxed{25 \frac{5}{6}}$$

$$25. \frac{5 + 2a}{-3} = \frac{5}{11}$$

$$\frac{2a}{-3} = -4 \frac{6}{11}$$

$$2a = 13 \frac{7}{11}$$

$$a = \boxed{6 \frac{7}{11}}$$

$$26. x + x + 1 + x + 2 = 228$$

$$3x + 3 = 228$$

$$3x = 225$$

$$\boxed{x = 75}$$

$$27. 250 + 14h \quad \text{vs.} \quad 22h$$

$$250 + 14(1) = 264$$

$$22(1) = 22$$

1 hour

$$250 + 14(2) = 278$$

$$22(2) = 44$$

2 hours

$$250 + 14(3) = 292$$

$$22(3) = 66$$

3 hours

$$250 + 14(3) = 250$$

$$22(5) = 110$$

5 hours

$$250 + 14(8) = 362$$

$$22(8) = 176$$

8 hours

$$250 + 14(10) = 390$$

$$22(10) = 220$$

10 hours

$$250 + 14(32) = 698$$

$$22(32) = 704$$

32 hours

32 hours

28. ABC = M & N
 $295 + 39x = 350 + 33x$

$$3x = 55$$

$x = 18.333 \leftarrow \# \text{ of days where the price is} =$

so 19 days

29. $7(h+3) = 6(h-3)$

$$7h + 21 = 6h - 18$$

$$h + 21 = -18$$

$$\boxed{h = -39}$$

30. $-(5a+6) = 2(3a+8)$

$$-5a - 6 = 6a + 16$$

$$-22 = 11a$$

$$\boxed{-2 = a}$$

31. $-2(2f-4) = -4(-f+2)$

$$-4f + 8 = 4f - 8$$

$$8 = 8f - 8$$

$$16 = 8f$$

$$\boxed{2 = f}$$

32. $3w - 6 + 2w = -2 + w$

$$5w - 6 = -2 + w$$

$$4w - 6 = -2$$

$$4w = 4$$

$$\boxed{w = 1}$$

33. $-8x - (3x+6) = 4-x$

$$-8x - 3x - 6 = 4 - x$$

$$-11x - 6 = 4 - x$$

$$-10 = 10x$$

$$\boxed{-1 = x}$$

$$34. 14 + 3n = 8n - 3(n - 4)$$

$$14 + 3n = 8n - 3n + 12$$

$$14 + 3n = 5n + 12$$

$$2 = 2n$$

$$\boxed{1 = n}$$

$$35. 4(3m + 4) = 2(6m + 8)$$

$$12m + 16 = 12m + 16$$

identity (aka infinitely many solutions)

$$36. 5x + 2x - 3 = -3x + 10x$$

$$7x - 3 = 7x$$

$$-3 = 0$$

no solution

$$37. 6.8 - 4.2B - 5.6B - 3$$

not an equation! cannot solve

$$38. \frac{1}{3} + \frac{2}{3}m = \frac{2}{3}m - \frac{2}{3}$$

no solution

$$39. -2(5.25 + 6.2x) = 4(-3.1x + 2.68)$$

$$-10.5 - 12.4x = -12.4x + 10.72$$

no solution

$$40. \frac{3}{5}(p - 3) = -4$$

$$p - 3 = -6\frac{2}{3}$$

$$\boxed{p = 3\frac{2}{3}}$$