7-7 More Practice

13. Use the formula \( y = kx \) to find \( k \) when
   a. \( y = 15 \) and \( x = 3 \)  
   b. \( y = 72 \) and \( x = 4 \)

14. Use the formula \( y = kx^2 \) to find \( k \) when
   a. \( y = 32 \) and \( x = 4 \)  
   b. \( y = 45 \) and \( x = 3 \)

15. If \( y = \frac{k}{x} \) find \( k \) if
   a. \( x = 5 \) and \( y = 4 \)  
   b. \( x = 5 \) and \( y = 15 \)

16. If \( y = \frac{k}{d^2} \) find \( k \) if
   a. \( J = 200 \) and \( d = 10 \)  
   b. \( J = 200 \) and \( d = 5 \)

Solve each of the following for the indicated variable:

17. \( A = lw \) for \( l \)  
18. \( d = rt \) for \( t \)
19. \( V = \frac{1}{2}bh \) for \( h \)  
20. \( PV = nRT \) for \( P \)
21. \( P = a + b + c \) for \( a \)
22. \( P = a + b + c \) for \( b \)
23. \( x = -3y - 1 \) for \( x \)
24. \( x + 3y = 2 \) for \( x \)
37. Solve for \( y \):
   a. \( y - 1 = \frac{3}{4}(x - 1) \)
   b. \( y + 2 = \frac{3}{4}(x - 4) \)
38. Solve for \( y \):
   a. \( y + 3 = \frac{3}{2}(x - 2) \)
   b. \( y + 4 = \frac{4}{3}(x - 3) \)
39. Solve for \( y \):
   a. \( \frac{y - 1}{x} = \frac{3}{5} \)
   b. \( \frac{y - 2}{x} = \frac{1}{2} \)
   c. \( \frac{y - 2}{x} = 4 \)
40. Solve for \( y \):
   a. \( \frac{y + 1}{x} = \frac{3}{5} \)
   b. \( \frac{y + 2}{x} = \frac{1}{3} \)
22. $P = a + b + c$ for $b$
23. $x - 3y = -1$ for $x$
24. $x + 3y = 2$ for $x$
25. $-3x + y = 6$ for $y$
26. $2x + y = -17$ for $y$
27. $2x + 3y = 6$ for $y$
28. $4x + 5y = 20$ for $y$
29. $P = 2l + 2w$ for $w$
30. $P = 2l + 2w$ for $l$
31. $h = vt + 16t^2$ for $v$
32. $h = vt - 16t^2$ for $v$
33. $A = \pi r^2 + 2\pi rh$ for $h$
34. $A = 2\pi r^2 + 2\pi rh$ for $h$
35. Solve for $y$.

40. Solve for $y$.
   a. $\frac{y + 1}{x} = \frac{3}{5}$
   b. $\frac{y + 2}{x} = \frac{1}{2}$
   c. $\frac{y + 3}{x} = \frac{1}{4}$

Solve each formula for $y$.

41. $\frac{x}{7} - \frac{y}{3} = 1$
42. $\frac{x}{4} - \frac{y}{9} = 1$
43. $-\frac{1}{4}x + \frac{1}{8}y = 1$
44. $-\frac{1}{9}x + \frac{1}{3}y = 1$

The next two problems are intended to give you practice reading, and paying attention to, the instructions that accompany the problems you are working. As we have mentioned previously, working these problems is an excellent way to get ready for a test or a quiz.

45. Work each problem according to the instructions.

36. Solve for $y$.
   a. $y - 3 = -2(x + 4)$
   b. $y - 5 = 4(x - 3)$

37. Solve for $y$.
   a. $y + 1 = \frac{2}{3}(x - 3)$
   b. $y - 3 = \frac{2}{3}(x + 3)$

For the problems that follow, more practice will be needed.

43. $-\frac{1}{4}x + \frac{1}{3}y = 1$
44. $-\frac{1}{9}x + \frac{1}{3}y = 1$

The next two problems are intended to give you practice reading, and paying attention to, the instructions that accompany the problems you are working. As we have mentioned previously, working these problems is an excellent way to get ready for a test or a quiz.

45. Work each problem according to the instructions.

a. Solve: $4x + 5 = 20$

b. Find the value of $4x + 5$ when $x$ is $3$.

c. Solve for $y$: $4x + 5y = 20$

d. Solve for $x$: $4x + 5y = 20$

For the problems that follow, more practice will be needed.
7-7 More Practice Answers

13. Use the formula $y = Kx$ to find $K$ when
   a. $y = 15$ and $x = 3$  
   b. $y = 72$ and $x = 4$  
14. Use the formula $y = Kx^2$ to find $K$ when
   a. $y = 32$ and $x = 4$  
   b. $y = 45$ and $x = 3$  
15. If $y = \frac{K}{x}$, find $K$ if
   a. $x = 5$ and $y = 4$  
   b. $x = 5$ and $y = 15$  
16. If $y = \frac{K}{d^2}$, find $K$ if
   a. $J = 200$ and $d = 10$  
   b. $I = 200$ and $d = 5$  

Solve each of the following for the indicated variable.

17. $A = \frac{1}{2} w \bar{h}$ for $I = \frac{A}{w}$  
18. $d = \frac{1}{2} r \bar{r}$ for $r = \frac{d}{r}$  
19. $V = \frac{1}{3} b h$ for $h = V \bar{b}$  
20. $PV = nRT$ for $P$, $P = \frac{\bar{V}RT}{V}$  
21. $P = a + b + c$ for $a = P - b - c$  
22. $P = a + b + c$ for $b = P - a - c$  
23. $x - 3y = 1$ for $x = 3y - 1$  
24. $x + 3y = 2$ for $x = -3y + 2$  

37. Solve for $y$:
   a. $y - 1 = \frac{3}{4}(x - 1)$  
   b. $y + 2 = \frac{3}{4}(x - 4)$  
38. Solve for $y$:
   a. $y + 3 = \frac{3}{2}(x - 2)$  
   b. $y + 4 = \frac{4}{3}(x - 3)$  
39. Solve for $y$:
   a. $\frac{y - 1}{x} = \frac{3}{5}$  
   b. $\frac{y + 2}{x} = \frac{1}{2}$  
   c. $\frac{y - 3}{x} = 4$  
40. Solve for $y$:
   a. $\frac{y + 1}{x} = \frac{3}{5}$  
   b. $\frac{y + 2}{x} = \frac{1}{2}$
40. Solve for $y$.
   a. \[ \frac{y+1}{x} = -3 \quad \Rightarrow \quad y = -3x - 1 \]
   b. \[ \frac{y+2}{x} = 1 \quad \Rightarrow \quad y = x + 2 \]
   c. \[ \frac{y+3}{x} = 1 \quad \Rightarrow \quad y = -4x - 3 \]

Find each formula for $y$.

41. \( \frac{x}{y} - \frac{2}{3} = 1 \quad \Rightarrow \quad y = \frac{3}{2}x - 3 \)
42. \( \frac{x}{4} - \frac{y}{9} = 1 \quad \Rightarrow \quad y = \frac{3}{2}x - 9 \)
43. \( \frac{1}{4}x + \frac{1}{3}y = 1 \quad \Rightarrow \quad y = 2x + 8 \)
44. \( \frac{1}{9}x + \frac{1}{3}y = 1 \quad \Rightarrow \quad y = \frac{3}{2}x + 3 \)

The next two problems are intended to give you practice reading and paying attention to the instructions that accompany the problems you are working. As we have mentioned previously, working these problems is an excellent way to get ready for a test or a quiz.

45. Work each problem according to the instructions.

For the next problem:

- Solve for $y$.
  a. \( y - 3 = -2(x + 4) \quad \Rightarrow \quad y = -2x - 5 \)
  b. \( y - 5 = 4x - 3x \quad \Rightarrow \quad y = 4x - 7 \)

36. Solve for $y$.
   a. \( y + 1 = -\frac{2}{3}(x - 3) \quad \Rightarrow \quad y = -\frac{2}{3}x + 1 \)
   b. \( y - 3 = \frac{2}{3}(x + 3) \quad \Rightarrow \quad y = \frac{2}{3}x + 1 \)

37. Solve for $y$.
   a. \( y + 1 = -\frac{2}{3}(x - 3) \quad \Rightarrow \quad y = -\frac{2}{3}x + 1 \)
   b. \( y - 3 = \frac{2}{3}(x + 3) \quad \Rightarrow \quad y = \frac{2}{3}x + 1 \)

38. Solve for $y$.
   a. \( y + 1 = -\frac{2}{3}(x - 3) \quad \Rightarrow \quad y = -\frac{2}{3}x + 1 \)
   b. \( y - 3 = \frac{2}{3}(x + 3) \quad \Rightarrow \quad y = \frac{2}{3}x + 1 \)

For the next problem:

- Solve for $y$.
  a. \( y + 1 = -\frac{2}{3}(x - 3) \quad \Rightarrow \quad y = -\frac{2}{3}x + 1 \)
  b. \( y - 3 = \frac{2}{3}(x + 3) \quad \Rightarrow \quad y = \frac{2}{3}x + 1 \)

For the next problem:

- Solve for $y$.
  a. \( y + 1 = -\frac{2}{3}(x - 3) \quad \Rightarrow \quad y = -\frac{2}{3}x + 1 \)
  b. \( y - 3 = \frac{2}{3}(x + 3) \quad \Rightarrow \quad y = \frac{2}{3}x + 1 \)

For the next problem:

- Solve for $y$.
  a. \( y + 1 = -\frac{2}{3}(x - 3) \quad \Rightarrow \quad y = -\frac{2}{3}x + 1 \)
  b. \( y - 3 = \frac{2}{3}(x + 3) \quad \Rightarrow \quad y = \frac{2}{3}x + 1 \)

For the next problem:

- Solve for $y$.
  a. \( y + 1 = -\frac{2}{3}(x - 3) \quad \Rightarrow \quad y = -\frac{2}{3}x + 1 \)
  b. \( y - 3 = \frac{2}{3}(x + 3) \quad \Rightarrow \quad y = \frac{2}{3}x + 1 \)