

1.3 Word Problems

p. 22

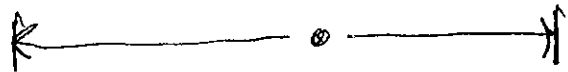
(29)

$$55x + 45x = 400$$

↑    ↑
speed    time
distance

$$\frac{100x}{100} = \frac{400}{100}$$

$$x = 4 \text{ hours}$$



(30)

$$3x + 3(2x) = 2700$$

↑    ↑
time    speed
distance

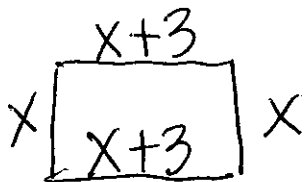
$$3x + 6x = 2700$$

$$\frac{9x}{9} = \frac{2700}{9}$$

$$x = 300$$

300mph  
+  
600mph

(31)



$$x + x + 3 + x + x + 3 = 24$$

$$4x + 6 = 24$$

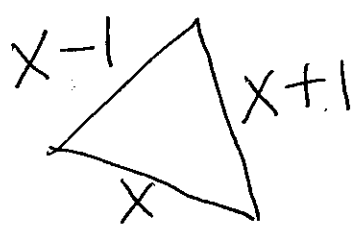
$$\frac{4x}{4} = \frac{18}{4}$$

width  
length

$$x = 4.5 \text{ cm}$$

$$7.5 \text{ cm}$$

32



add up all sides

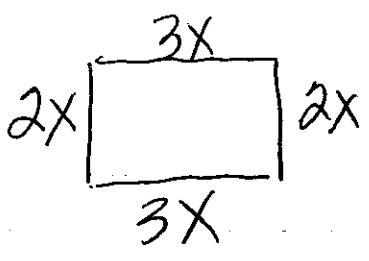
$$x + x - 1 + x + 1 = 17$$

$$\frac{3x}{3} = \frac{17}{3}$$

$$x = 5\frac{2}{3}$$

$4\frac{2}{3}, 5\frac{2}{3}, 6\frac{2}{3}$  inches

33



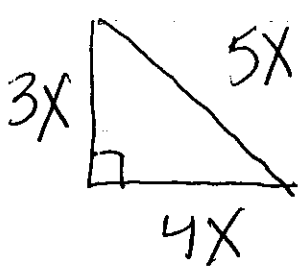
$$2x + 3x + 2x + 3x = 55$$

$$\frac{10x}{10} = \frac{55}{10}$$

$$x = 5.5$$

$2(5.5) = 11 \text{ cm}$   
 $3(5.5) = 16.5 \text{ cm}$

34



$$3x + 4x + 5x = 30$$

$$12x = 30$$

$$x = 2.5$$

$12.5, 10, 7.5 \text{ cm}$

35

consecutive integers

sum (addition)

$x$        $x+1$        $x+2$       ...  
 1st      2nd      3rd

a

$$x + x + 1 + x + 2 = 90$$

$$3x + 3 = 90$$

$$\begin{array}{r} -3 \\ -3 \\ \hline 3x = 87 \end{array}$$

$$\frac{3x}{3} = \frac{87}{3} \quad x = 29$$

$29, 30, 31$

6

$X-1, X, X+1$   
1st, 2nd, 3rd

29, 30, 31

$$\begin{aligned}
 X-1 + X + X+1 &= 90 \\
 3X &= 90 \\
 X &= 30
 \end{aligned}$$

consecutive even or odd #'s

1st	2nd	3rd	...	4th
$X$	$X+2$	$X+4$	...	$X+6$

53

$$X + X+2 + X+4 + X+6 = 184$$

$$\begin{aligned}
 4X + 12 &= 184 \\
 -12 &\quad -12 \\
 \hline
 4X &= 172 \\
 \hline
 X &= 43
 \end{aligned}$$

43, 45, 47, 49

54

$$X+2 + X+6 = 76$$

$$\begin{aligned}
 2X + 8 &= 76 \\
 -8 &\quad -8 \\
 \hline
 2X &= 68 \\
 \hline
 X &= 34
 \end{aligned}$$

34, 36, 38, 40

# Practice 1-3

## Solving Equations

Solve each formula for the indicated variable.

1.  $V = \frac{\pi}{3} r^2 h$ , for  $h$

2.  $S = L(1 - r)$ , for  $r$

3.  $S = lw + wh + lh$ , for  $w$

Solve for  $x$ . State any restrictions on the variables.

4.  $\frac{4}{9}(x + 3) = g$

5.  $a(x + c) = b(x - c)$

6.  $\frac{x + 3}{t} = t^2$

*Wkst*  
**Turned In**

7. Two brothers are saving money to buy tickets to a concert. Their combined savings is \$55. One brother has \$15 more than the other. How much has each saved?

8. The sides of a triangle are in the ratio 5 : 12 : 13. What is the length of each side of the triangle if the perimeter of the triangle is 15 in.?

9. Find three consecutive numbers whose sum is 126.

*HW: BOOK*  
*p. 21-22 (4, 7, 11, 13)*  
*24, 28,*  
*36-39*

Solve each equation.

10.  $\frac{1}{2}(x - 3) + \left(\frac{3}{2} - x\right) = 5x$

11.  $5w + 8 - 12w = 16 - 15w$

12.  $7y + 5 = 6y + 11$

13.  $1.2(x + 5) = 1.6(2x + 5)$

14.  $t - 3\left(t + \frac{4}{3}\right) = 2t + 3$

15.  $0.5(c + 2.8) - c = 0.6c + 0.3$

16.  $3(x + 1) = 2(x + 11)$

17.  $\frac{u}{5} + \frac{u}{10} - \frac{u}{6} = 1$

18. Mike and Adam left a bus terminal at the same time and traveled in opposite directions. Mike's bus was in heavy traffic and had to travel 20 mi/h slower than Adam's bus. After 3 hours, their buses were 270 miles apart. How fast was each bus going?

19. Two trains left a station at the same time. One traveled north at a certain speed and the other traveled south at twice the speed. After 4 hours, the trains were 600 miles apart. How fast was each train traveling?

20. Find four consecutive odd integers whose sum is 336.

21. The length of a rectangle is 5 cm greater than its width. The perimeter is 58 cm. Find the dimensions of the rectangle.

