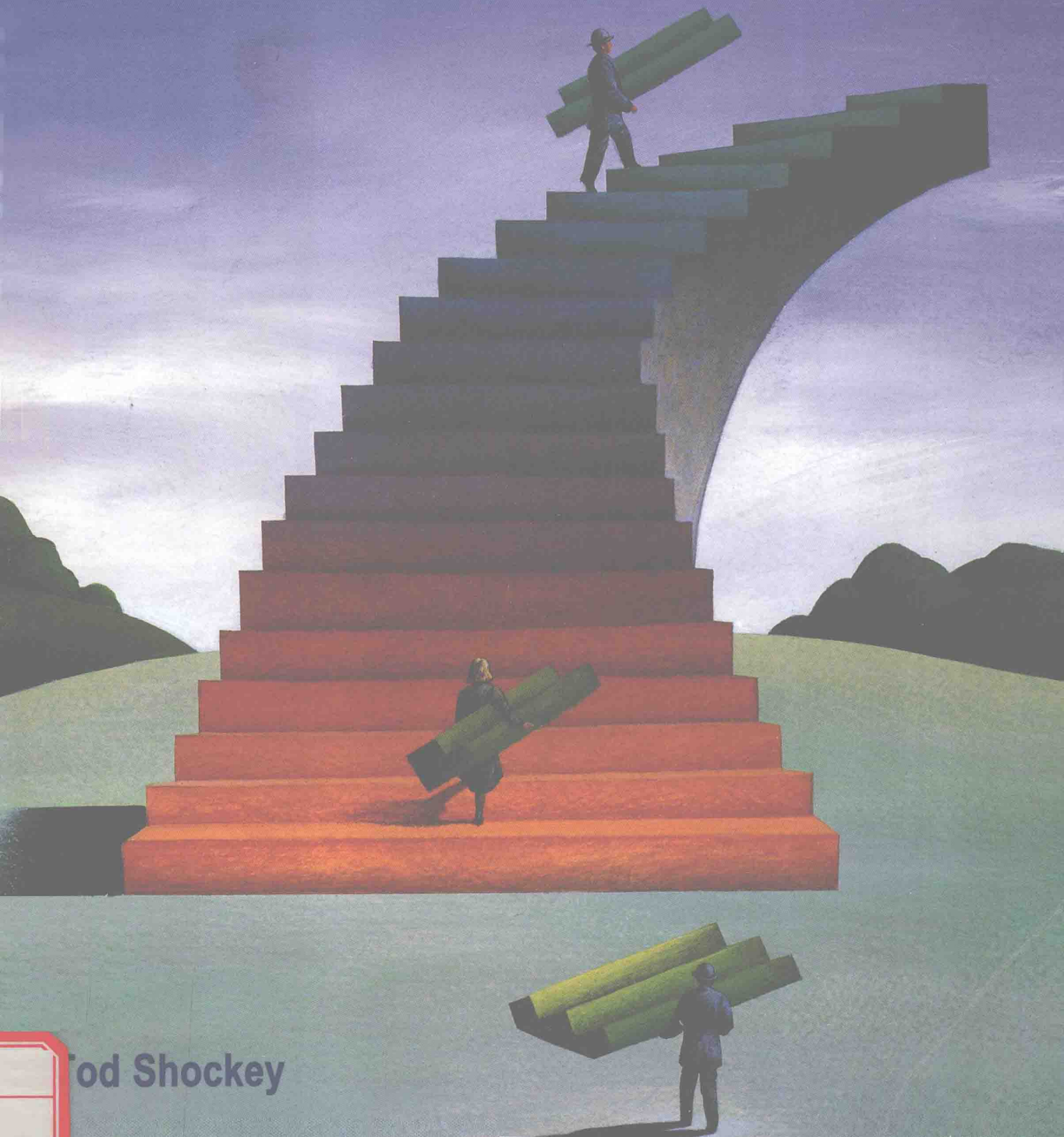


STUDENT SOLUTIONS MANUAL FOR TUSSY AND GUSTAFSON'S

# Elementary Algebra

S E C O N D E D I T I O N



od Shockey

Student Solutions Manual  
for Tussy and Gustafson's  
Elementary Algebra

Tod Shockey  
*University of Wisconsin – Stevens Point*



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## Section 1.1

### Vocabulary

- The answer to an addition problem is called the **sum**.
- The answer to a multiplication problem is called the **product**.
- Variables** are letters that stand for numbers.
- Variables and numbers can be combined with the operations of addition, subtraction, multiplication, and division to create algebraic **expressions**.
- An equation such as  $t = 2b$ , which expresses a known relationship between two or more variables, is called a **formula**.
- In illustration 1, the **horizontal** axis of the graph has been scaled in units of **1** second.

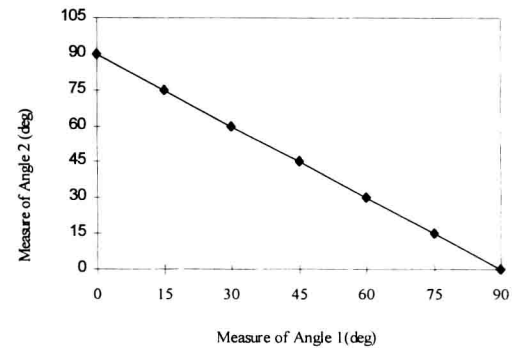
### Concepts

- $18 + m = 23$  equation
- $y - 1$  algebraic expression
- $30x$  algebraic expression
- $r = \frac{2}{3}$  equation
- The expression  $5x - 16$  contains multiplication and subtraction.
  - The variable is  $x$ .
- The equation  $4 + 1 = 20 - m$  contains addition and subtraction.
  - The variable is  $m$ .

- Angle 1 + Angle 2 =  $90^\circ$

Angle 1	Angle 2
$0^\circ$	$90^\circ$
$30^\circ$	$60^\circ$
$45^\circ$	$45^\circ$
$60^\circ$	$30^\circ$
$90^\circ$	$0^\circ$

b.



- The dotted lines help us determine that 15-year-old machinery is worth \$35,000.
  - As the machinery ages its value decreases.

### Notation

- $5 \times 6 = 5 \cdot 6 = 5(6)$
- $34 \times 75 = 34 \cdot 75 = 34(75)$
- $4 \cdot x = 4x$
- $3 \cdot r \cdot t = 3rt$
- $l \cdot w = lw$
- $P \cdot r \cdot t = Prt$
- $32 \div x = \frac{32}{x}$
- $\frac{90}{30}$

### Practice

- $18(24)$ , the product of 18 and 24
- $11 - 9$ , the difference of 11 and 9
- $2x$ , the product of 2 and  $x$
- $\frac{66}{11}$ , the quotient of 66 and 11



53. The sale price is \$100 minus the discount.

$$S = 100 - d$$

55. 7 times the age of a dog in years gives the dog's equivalent human age.

$$7d = h$$

57.  $s = 3c$ , where  $s$  is sand and  $c$  is cement.

59.  $w = e + 1,200$ , where  $w$  is truck weight and  $e$  is engine weight.

61.  $p = r - 600$ , where  $p$  is profit and  $r$  is revenue.

63.  $\frac{l}{4} = m$ , where  $l$  is laps and  $m$  is miles.

65.  $d = 360 + l$

Lunch Time (min)	School Day (min)
30	$d = 360 + 30 = 390$
40	$d = 360 + 40 = 400$
45	$d = 360 + 45 = 405$

67.  $t = 1,500 - d$

Deductions	Take-Home Pay
200	$t = 1,500 - 200 = 1,300$
300	$t = 1,500 - 300 = 1,200$
400	$t = 1,500 - 400 = 1,100$

69.  $d = \frac{e}{12}$ ; the number of dozen eggs is the quotient of the number of eggs and 12.

71.  $T = b + 35,000$ ; the total compensation is the sum of the benefit package and 35,000.

### Applications

73. CHAIR PRODUCTION

$l = 4c$ ; 4 legs per chair

$a = 2c$ ; 2 arms per chair

$S = c$ ; 1 seat per chair

$b = c$ ; 1 back per chair

$p = 2c$ ; 2 arm pads per chair

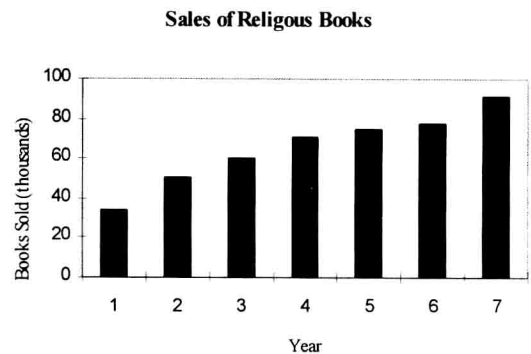
$s = 20c$ ; 20 screws per chair

75. SPARE PARTS

$d = x + 500$ , the number of left doors to order is the sum of the number of cars produced and 500.

77. RELIGIOUS BOOKS

Trend: Sales have steadily increased over the years.



### Writing

79. Answers will vary

81. Answers will vary

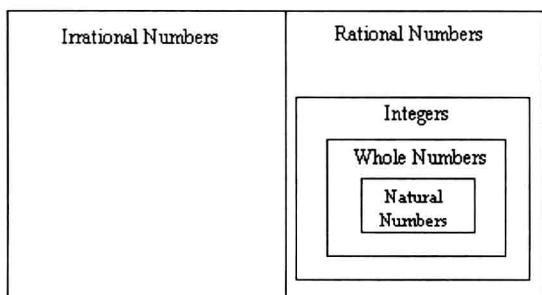
## Section 1.2

### Vocabulary

- The set of **whole** numbers is  $\{0, 1, 2, 3, 4, 5, \dots\}$ .
- Numbers less than zero are **negative**, and numbers greater than zero are **positive**.
- A **rational** number can be written as a fraction with an **integer** in the numerator and a nonzero integer in its denominator.
- The set of **integers** is  $\{\dots - 2, - 1, 0, 1, 2, \dots\}$ .
- An **irrational** number cannot be written as a fraction with an integer for its numerator and denominator.
- The **absolute value** of a number is the distance on a number line between the number and 0.

### Concepts

- $6 = \frac{6}{1}$ ;  $-9 = \frac{-9}{1}$ ;  $-\frac{7}{8} = -\frac{7}{8}$   
 $3\frac{1}{2} = \frac{7}{2}$ ;  $-0.3 = -\frac{3}{10}$ ;  $2.83 = \frac{283}{100}$
- 13 and  $-3$  are 8 away from 5 on the number line.
- $a < b$
  - $b > a$
  - $b > 0$  and  $a < 0$
- 



### Notation

- $\sqrt{5}$  is read as "the **square root** of 5."
- The symbol  $\approx$  means **is approximately equal to**.
- In  $\frac{3}{4}$ , 3 is the **numerator**, and 4 is the **denominator** of the fraction.

$$27. 4\pi \text{ means the product of 4 and } \pi \text{ or } 4 \cdot \pi. \\ 4\pi \approx 12.6$$

- $-2 > -3$
- $|3.4| > \sqrt{10}$
- $-|-1.1| < -1$
- $-(-\frac{5}{8}) < (-\frac{3}{8})$
- $|- \frac{15}{2}| = 7.5$
- $\frac{99}{100} = 0.99$
- $0.333\dots > 0.3$
- $-(-1) > |-\frac{15}{16}|$

### Practice

whole	0
integers	0, $-50$
rational	$-\frac{5}{6}$ , 35.99, $0, 4\frac{3}{8}$ , $-50, \frac{17}{5}$
irrational	$\sqrt{2}$
real	all

- true
  - false
  - false
  - true
- $-6 < -5$  is the same as  $-5 > -6$
  - $16 > -25$  is the same as  $-25 < 16$
- $-\frac{35}{8} \quad | \quad -\pi \quad | \quad -1\frac{1}{2} \quad | \quad 0.33 \quad | \quad 0 \quad | \quad \sqrt{2} \quad | \quad -4 \quad | \quad 25 \quad | \rightarrow$
- $\sqrt{5} \approx 2.236$
- $\sqrt{99} \approx 9.950$
- $2\sqrt{5} \approx 4.472$
- $5\pi \approx 15.708$
- The opposite of 5 is  $-5$ .
- The opposite of  $-\frac{7}{8}$  is  $\frac{7}{8}$ .
- $-(-10) = 10$
- $-(-2.3) = 2.3$

## Applications

### 69. BANKING

natural	750, 5000
whole	750, 5000
integers	750, 5000
rational	all
irrational	none
real	all

### 71. AUTOMOBILE INDUSTRY

a.	Year	Approx. Net Income
	1990	\$0.3
	1991	-\$0.8
	1992	\$0.9
	1993	-\$2.3
	1994	\$3.8
	1995	\$2.0
	1996	\$3.8
	1997	\$2.8

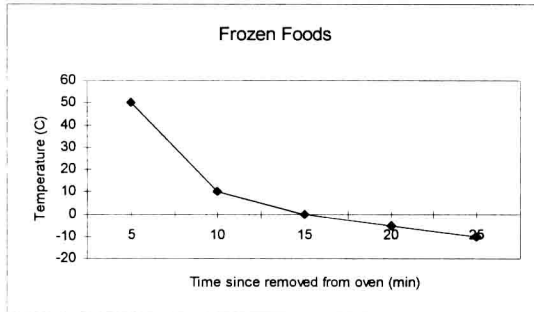
- b. A negative net income means the company lost money.

### 73. TIRES

Using  $C = \pi d$  to estimate how far a tire with a diameter of 26 inches will roll in one revolution,  $C = \pi(26)$ .

$C = 81.68140\dots$ , to the nearest tenth the tire will roll 81.7 inches in one revolution.

### 75. FROZEN FOODS



### 77. VELOCITY AND SPEED

The speed of the car is 55 mph to the right and the speed of the motorcycle is 30 mph to the left.

### 79. 500 years are the basic unit for the scale.

81. A.D. can thought of as the positive numbers and B.C. can be thought of as the negative numbers.

## Writing

83. Answers will vary.

85. Answers will vary.

87. Answers will vary.

## Review

89.  $7 - 5 = 2$ , the difference of 7 and 5 is 2.

91.  $30 \div 15 = 2$ , the quotient of 30 and 15 is 2.

93.  $T = 15g$ , where  $T$  is the number of teeth and  $g$  is the number of gears.

Gears	Teeth
10	$T = 15(10) = 150$
12	$T = 15(12) = 180$
15	$T = 15(15) = 225$

### Section 1.3

#### Vocabulary

- In the multiplication statement  $6 \cdot 7 = 42$ , the numbers being multiplied are called **factors**.
- $10^2$  can be read as **ten squared**, and  $10^3$  can be read as **ten cubed**.
- The arithmetic **mean** or **average** of a set of numbers is a value around which the values of the numbers are grouped.

#### Concepts

- $4 + 5 \cdot 6$  contains addition and multiplication
  - $4 + 5 \cdot 6 = 9 \cdot 6 = 54$   
 $4 + 5 \cdot 6 = 4 + 30 = 34$
  - $4 + 5 \cdot 6 = 4 + 30 = 34$  is correct since multiplication is done before addition.
- Divide the sum of the scores by the number of scores.
  - $\frac{75+81+47+53}{4} = \frac{256}{4} = 64$
- $12 + 5^2 \cdot 3$  contains addition, power, and multiplication.
  - power, multiplication, addition
- $\frac{36-4(7)}{2(10-8)}$  multiplication first in the numerator, subtraction first in the denominator.
- $80 - 3 + 5 - 2^2$  power
  - $80 - (3 + 5) - 2^2$  addition
  - $80 - 3 + (5 - 2)^2$  subtraction

#### Notation

- $12^6$
- $50 + 6 \cdot 3^2 = 50 + 6 \cdot 9$   
 $= 50 + 54$   
 $= 104$
- $19 - 2[(1 + 2) \cdot 3] = 19 - 2[3 \cdot 3]$   
 $= 19 - 2(9)$   
 $= 19 - 18$   
 $= 1$

#### Practice

- $d = 16t^2$

- Let  $s$  be the side length then the volume is  $V = s^3$ .

Side Length (in.)	Volume (in <sup>3</sup> )
1	$V = (1)^3 = 1$
2	$V = (2)^3 = 8$
3	$V = (3)^3 = 27$
4	$V = (4)^3 = 64$

- $b \cdot b \cdot b = b^3$
- $10 \cdot 10 \cdot k \cdot k \cdot k = 10^2 k^3$
- $4 \cdot \pi \cdot r \cdot r = 4\pi r^2$
- $6 \cdot x \cdot x \cdot y \cdot y \cdot y = 6x^2 y^3$
- $12 - 2 \cdot 3 = 12 - 6 = 6$
- $15 + (30 - 4) = 15 + 26 = 41$
- $100 - 8(10) + 60 = 100 - 80 + 60 = 80$
- $22 - (15 - 3) = 22 - 12 = 10$
- $2(9) - 2(5) = 18 - 10 = 8$
- $5^2 + 13^2 = 25 + 169 = 194$
- $3 \cdot 8^2 = 3 \cdot 64 = 192$
- $8 \cdot 5 - 4 \div 2 = 40 - 2 = 38$
- $14 + 3(7 - 5) = 14 + 3(2) = 14 + 6 = 20$
- $4 + 2[26 - 5(3)]$   
 $= 4 + 2[26 - 15]$   
 $= 4 + 2(11)$   
 $= 4 + 22$   
 $= 26$
- $(10 - 3)^2 = 7^2 = 49$
- $10 - 3^2 = 10 - 9 = 1$
- $19 - (45 - 41)^2$   
 $= 19 - 4^2$   
 $= 19 - 16$   
 $= 3$
- $2 + 3 \cdot 2^2 \cdot 4$   
 $= 2 + 3 \cdot 4 \cdot 4$   
 $= 2 + 48$   
 $= 50$

$$\begin{aligned}
 63. \quad & 3(4)(5)(6) \\
 & = 12(5)(6) \\
 & = 60(6) \\
 & = 360
 \end{aligned}$$

$$\begin{aligned}
 65. \quad & 5[9(2) - 2(8)] \\
 & = 5[18 - 16] \\
 & = 5(2) \\
 & = 10
 \end{aligned}$$

$$\begin{aligned}
 67. \quad & 75 - 3 \cdot 1^2 \\
 & = 75 - 3 \\
 & = 72
 \end{aligned}$$

$$\begin{aligned}
 69. \quad & 5(150 - 3^3) \\
 & = 5(150 - 27) \\
 & = 5(123) \\
 & = 615
 \end{aligned}$$

$$\begin{aligned}
 71. \quad & (4 + 2 \cdot 3)^4 \\
 & = (4 + 6)^4 \\
 & = 10^4 \\
 & = 10,000
 \end{aligned}$$

$$\begin{aligned}
 73. \quad & 3(2)^5(2)^2 \\
 & = 3(32)(4) \\
 & = 384
 \end{aligned}$$

$$\begin{aligned}
 75. \quad & 6\left(\frac{25}{5}\right) - \frac{36}{9} + 1 \\
 & = 6(5) - 4 + 1 \\
 & = 30 - 4 + 1 \\
 & = 27
 \end{aligned}$$

$$\begin{aligned}
 77. \quad & \frac{5(68-32)}{9} \\
 & = \frac{5(36)}{9} \\
 & = \frac{180}{9} \\
 & = 20
 \end{aligned}$$

$$\begin{aligned}
 79. \quad & \frac{(6-5)^4+21}{27-4^2} \\
 & = \frac{1^4+21}{27-16} \\
 & = \frac{1+21}{27-16} \\
 & = \frac{22}{11} \\
 & = 2
 \end{aligned}$$

$$\begin{aligned}
 81. \quad & \frac{13^2-5^2}{3(9-5)} \\
 & = \frac{169-25}{3(4)} \\
 & = \frac{144}{12} \\
 & = 12
 \end{aligned}$$

$$\begin{aligned}
 83. \quad & \frac{8^2-10}{2(3)(4)-5(3)} \\
 & = \frac{64-10}{24-15} \\
 & = \frac{54}{9} \\
 & = 6
 \end{aligned}$$

$$85. \quad 56, 120$$

$$87. \quad 91, 985$$

## Applications

### 89. CASH AWARDS

a. Money awarded is the sum of the grand prize, four first place prizes, thirty-five second place prizes, and eighty-five third place prizes.

$$M = 2,500 + 4(500) + 35(150) + 85(25)$$

$$M = 2,500 + 2,000 + 5,250 + 2,125$$

$$M = \$11,875$$

b. Let  $c$  be the cash average; 125 is the total number of prizes awarded.

$$c = \frac{2,500+4(500)+35(150)+85(25)}{125}$$

$$c = \frac{11,875}{125}$$

$$c = \$95$$

### 91. STAKES RACES

Let  $s$  be the average stake award

$$s = \frac{2(300,000)+2(200,000)+2(175,000)+2(150,000)}{8}$$

$$s = \frac{600,000+400,000+350,000+300,000}{8}$$

$$s = \frac{1,650,000}{8}$$

$$s = \$206,250$$

### 93. SPREADSHEETS

	A	B	C	$D = \frac{6C-(A+B)}{12}$
1	20	4	8	$\frac{6(8)-(20+4)}{12} = \frac{48-24}{12} = \frac{24}{12} = 2$
2	9	3	16	$\frac{6(16)-(9+3)}{12} = \frac{96-12}{12} = \frac{84}{12} = 7$
3	1	5	11	$\frac{6(11)-(1+5)}{12} = \frac{66-6}{12} = \frac{60}{12} = 5$

### 95. CABLE TELEVISION

a.

Month 1	Month 2	Month 3	Month 4
$5 = 5^1$	$25 = 5^2$	$125 = 5^3$	$625 = 5^4$

b. Based on this pattern in month 5 we could predict  $5^5$  or 3,125 new cable subscribers.

**Writing**

97. Answers may vary.

99. Answers may vary.

**Review**

101.  $|-5| = 5$

103. True

105.  $-9$  and  $3$  are a distance of  $6$  away from  $-3$ .

## Section 1.4

### Vocabulary

1. To **evaluate** an algebraic expression, we substitute the values for the variables and then apply the rules for the order of operations.
3. When translated to mathematical symbols words such as decreased and reduced indicate the operation of **subtraction**.

### Concepts

5. Answers may vary. Examples:  $6 + 20x$ ;  $\frac{6-x}{20}$
7.  $3x - 6$  evaluated for  $x = 4$ , could be misunderstood as  $34 - 6$  without parentheses,  $3(4) - 6$ .
9.
  - a. Let  $x$  be the weight of the car;  
 $2x - 500$  = the weight of the van.
  - b. If the car weighs 2,000 pounds then the van weighs  $2(2,000) - 500 = 4,000 - 500 = 3500$  pounds.
11.
  - a. The evaluated algebraic expression is  $8x - x^2$ .
  - b. The expression was evaluated for  $x$  equal to 3, 4, and 5.
  - c. For  $x = 4$ , the expression  $8x - x^2$  is  $8(4) - (4)^2 = 32 - 16 = 16$

### Notation

13.  $9a - a^2$  evaluated for  $a = 5$  is
 
$$\begin{aligned}
 &= 9(5) - 5^2 \\
 &= 9(5) - 25 \\
 &= 45 - 25 \\
 &= 20
 \end{aligned}$$

### Practice

15. The sum of the length  $l$  and 15 is  $l + 15$ .
17. The product of a number and 50 is  $50x$ .
19. The ratio of the amount won  $w$  and lost  $l$  is  $\frac{w}{l}$ .
21.  $P$  increased by  $p$  is  $P + p$ .
23. The square of  $k$  minus 2,005 is  $k^2 - 2,005$ .
25.  $J$  reduced by 500 is  $J - 500$ .
27. 1,000 split  $n$  equal ways is  $\frac{1000}{n}$ .

29. 90 more than the current price  $p$ , is  $p + 90$ .
31. The total of 35,  $h$ , and 300 is  $35 + h + 300$ .
33. 680 fewer than the entire population  $p$  is  $p - 680$ .
35. The product of  $d$  and 4 decreased by 15 is  $4d - 15$ .
37. Twice the sum of 200 and  $t$  is  $2(200 + t)$ .
39. The absolute value of the difference of  $a$  and 2 is  $|a - 2|$ .
41. 7 less than a number
43. The product of 7 and a number increased by 4.
45.
  - a. In 5 hours there are  $5(60)$  or 300 minutes
  - b. In  $h$  hours there are  $60h$  minutes
47.
  - a. There are  $3y$  feet in a  $y$  yards
  - b. There are  $\frac{f}{3}$  yards in  $f$  feet
49. The altered skirt length is  $x + 2$
51. After the jeans are washed the new length will be  $36 - x$
53.
  - a. In an 8-hour day the clerk earns  $\$8x$
  - b. In a 40-hour week the clerk earns  $\$40x$
55. Tickets for a family and two neighbors will cost  $\$5(x + 2)$  where  $x + 2$  represents the total number of people
57. For  $x = 7$ ,  $6x$  is  $6(7) = 42$
59. For  $t = 8$ ,  $3(t - 6)$  is  $3(8 - 6) = 3(2) = 6$

61.
 

$g$	$g^2 - 7g + 1$
0	$0^2 - 7(0) + 1 = 1$
7	$7^2 - 7(7) + 1 = 1$
10	$10^2 - 7(10) + 1 = 31$

63.
 

$s$	$\frac{5s+36}{s}$
1	$\frac{5(1)+36}{1} = 41$
6	$\frac{5(6)+36}{6} = 11$
12	$\frac{5(12)+36}{12} = 8$

65.
 

$x$	$2x - \frac{x}{2}$
100	$2(100) - \frac{100}{2} = 150$
300	$2(300) - \frac{300}{2} = 450$

67.	<table border="1"><tr><td><math>a</math></td><td><math>3a^2 + 1</math></td></tr><tr><td>4</td><td><math>3(4)^2 + 1 = 49</math></td></tr><tr><td>8</td><td><math>3(8)^2 + 1 = 193</math></td></tr></table>	$a$	$3a^2 + 1$	4	$3(4)^2 + 1 = 49$	8	$3(8)^2 + 1 = 193$
$a$	$3a^2 + 1$						
4	$3(4)^2 + 1 = 49$						
8	$3(8)^2 + 1 = 193$						

69. For  $a = 5$  and  $b = 12$ ,  
 $a^2 + b^2 = 5^2 + 12^2 = 169$

71. For  $s = 23$  and  $t = 21$ ,  $\frac{s+t}{s-t} = \frac{23+21}{23-21} = 22$

73. For  $h = 5$ ,  $b = 7$ , and  $c = 9$ ,  
 $\frac{h(b+c)}{2} = \frac{5(7+9)}{2} = \frac{5(16)}{2} = \frac{80}{2} = 40$

75. A basketball with radius 4.5 inches has a volume of  
 $\frac{4\pi r^3}{3} = \frac{4\pi(4.5)^3}{3} = 381.7 \text{ in}^3$

### Applications

#### 77. TRAINING PROGRAM

Let  $n$  = the original number entering the lifeguard program, then  $\frac{n-6}{8}$  is the number of lifeguards in each squad.

#### 79. OCCUPANCY RATE

Let  $a$  = the number of apartments occupied before the rent was lowered, then  $2a - 3$  is the number of apartments now occupied.

#### 81. ROCKETRY

$t$	$h = 64t - 16t^2$
0	$h = 64(0) - 16(0)^2 = 0$
0.5	$h = 64(0.5) - 16(0.5)^2 = 28$
1	$h = 64(1) - 16(1)^2 = 48$
1.5	$h = 64(1.5) - 16(1.5)^2 = 60$
2	$h = 64(2) - 16(2)^2 = 64$
2.5	$h = 64(2.5) - 16(2.5)^2 = 60$
3	$h = 64(3) - 16(3)^2 = 48$
3.5	$h = 64(3.5) - 16(3.5)^2 = 28$
4	$h = 64(4) - 16(4)^2 = 0$

#### 83. PACKAGING

	B	C	D	$E=2*B1*C1+2*B1*D1+2*C1*D1$
1	12	6	6	$2(12)(6)+2(12)(6)+2(6)(6)=360 \text{ in}^2$
2	18	12	12	$2(18)(12)+2(18)(12)+2(12)(12)=1152 \text{ in}^2$
3	18	24	18	$2(18)(24)+2(18)(18)+2(24)(18)=2376 \text{ in}^2$

#### 85. ENERGY CONSERVATION

Using  $h = 5.5$  feet and  $r = 2$  feet, the heater surface is  $2\pi rh = 2\pi(2)(5.5) = 69 \text{ ft}^2$

### Writing

87. Answers will vary

### Review

89. Simplify  $-0.0$

91.  $\left| -\frac{2}{3} \right| = \frac{2}{3}$

93.  $c \cdot c \cdot c \cdot c = c^4$

95.  $\frac{84+93+72}{3} = 83$



## Section 1.5 Vocabulary

1. An **equation** is a statement indicating that two expressions are equal.
3. To **check** the solution of an equation, we substitute the value for the variable in the original equation and see whether the result is a **true** statement.
5. Two equations are **equivalent** when they have the same solutions.
7. To solve an equation, we **isolate** the variable on one side of the equals side.

## Concepts

9. a.  $x - 8 = 24$  subtraction of 8, addition of 8  
b.  $x + 8 = 24$  addition of 8, subtraction of 8  
c.  $\frac{x}{8} = 24$  division by 8, multiplication by 8  
d.  $8x = 24$  multiplication by 8, division by 8
11. a.  $x + 6$  forms the left side of the equation  
b. neither  
c. Let  $x = 5$  then  $x + 6$  becomes  $5 + 6 \neq 12$ ; no  
d. Let  $x = 6$  then  $x + 6$  becomes  $6 + 6 = 12$ ; yes
13.  $x + 15 = 45$   
 $x + 15 - 15 = 45 - 15$   
 $x = 30$
15.  $12 = 0.40 \cdot x$
17. a. 35% translates to 0.35  
b. 3.5% translates to 0.035  
c. 350% translates to 3.5  
d.  $\frac{1}{2}\%$  translates to 0.005

## Practice

19.  $x = 6$  is a solution since  $6 + 12 = 18$
21.  $b = 5$  is not a solution since  $2(5) + 3 \neq 13$
23.  $x = 5$  is not a solution since  $0.5(5) \neq 2.9$
25.  $x = 6$  is a solution since  $33 - \frac{6}{2} = 30$
27.  $c = 20$  is not a solution since  $|20 - 8| \neq 10$
29.  $x = 12$  is not a solution since  
 $3(12) - 2 \neq 4(12) - 5$   
 $34 \neq 43$

31.  $x = 3$  is a solution since  
 $(3)^2 - 3 - 6 = 0$

33.  $a = 1$  is a solution since  
 $\frac{2}{1+1} + 5 = \frac{12}{1+1}$

35.  $x = 201$  is a solution since  
 $\sqrt{(201 - 5)} + 1 = 15$

37.  $x + 7 = 10$   
 $x + 7 - 7 = 10 - 7$   
 $x = 3$   
check  
 $3 + 7 = 10$

39.  $a - 5 = 66$   
 $a - 5 + 5 = 66 + 5$   
 $a = 71$   
check  
 $71 - 5 = 66$

41.  $0 = n - 9$   
 $0 + 9 = n - 9 + 9$   
 $9 = n$   
check  
 $0 = 9 - 9$

43.  $9 + p = 90$   
 $9 - 9 + p = 90 - 9$   
 $p = 81$   
check  
 $9 + 81 = 90$

45.  $9 + p = 9$   
 $9 - 9 + p = 9 - 9$   
 $p = 0$   
check  
 $9 + 0 = 9$

47.  $203 + f = 442$   
 $203 - 203 + f = 442 - 203$   
 $f = 239$   
check  
 $203 + 239 = 442$

49.  $4x = 16$   
 $\frac{4x}{4} = \frac{16}{4}$   
 $x = 4$   
check  
 $4(4) = 16$