

# Answers

## Lesson 9.1

### Teaching Guide

1. 15   2. 30 : 60 or  $\frac{1}{2}$    3. 40%.

### Technology Activity

1. 68%   2. 92%   3. 35.9375%   4. 68.75%  
5. 46.875%   6. 83.75%   7. 21%  
8. 12.625%   9. 10%   10. 5.25%   11. 90%  
12. 94.75%

### Practice A

1. 4   2. 20   3. 50   4.  $\frac{24}{100}$ ; 24%  
5.  $\frac{31}{100}$ ; 31%   6.  $\frac{98}{100}$ ; 98%   7.  $\frac{17}{100}$    8.  $\frac{1}{4}$    9.  $\frac{31}{50}$   
10. 90%   11. 32%   12. 87%   13. 12   14. 7  
15. 12   16.  $\frac{49}{50}$    17. 86%   18. 44%

### Practice B

1.  $\frac{22}{25}$    2.  $\frac{12}{25}$    3.  $\frac{1}{10}$    4.  $\frac{3}{4}$    5.  $\frac{1}{50}$    6.  $\frac{39}{100}$   
7. 80%   8. 30%   9. 58%   10. 45%  
11. 56%   12. 20%   13. 34   14. 16   15. 15  
16. 21   17. 200   18. 30   19. false;  $\frac{1}{10} = 10\%$   
20. true   21. false;  $\frac{17}{20} = 85\%$    22. 35   23. 84  
24. 66   25. <   26. >   27.  $\frac{2}{5}$    28. 35%  
29. 95%

### Practice C

1.  $\frac{63}{100}$    2.  $\frac{24}{25}$    3.  $\frac{3}{50}$    4.  $\frac{3}{20}$    5.  $\frac{27}{50}$    6.  $\frac{8}{25}$   
7. 60%   8. 70%   9. 62%   10. 48%  
11. 95%   12. 54%   13. 14   14. 51   15. 19  
16. 17   17. 45   18. 48   19. 55   20. 92  
21. 86   22. <   23. >   24. =   25. <   26.  $\frac{2}{25}$   
27. 68%   28. 5%   29. 40% of 50   30. 64%

### Study Guide

1.  $\frac{13}{20}$    2.  $\frac{83}{100}$    3.  $\frac{27}{100}$    4.  $\frac{4}{25}$    5. 85%  
6. 44%   7. 18%   8. 20%   9. 3   10. 108  
11. 84%

### Challenge Practice

1. 20%   2. 68%, 32%   3. Player 2

4. Player 3   5. *Sample Answer:* Players 1, 3, and 6   6. *Sample Answer:* Players 1, 2, and 5  
7. 75%

## Lesson 9.2

### Teaching Guide

1.  $\frac{15}{60} = \frac{x}{100}$ ;  $x = 25$    2.  $\frac{36}{m} = \frac{40}{100}$ ;  $m = 90$   
3.  $\frac{p}{60} = \frac{90}{100}$ ;  $p = 54$  points

### Practice A

1. 40   2. 12   3. 50   4. 50%   5. 80%  
6.  $16\frac{2}{3}\%$    7. C   8. A   9. B  
10.  $\frac{8}{40} = \frac{p}{100}$ ; 20   11.  $\frac{a}{36} = \frac{25}{100}$ ; 9  
12.  $\frac{60}{b} = \frac{20}{100}$ ; 300   13.  $\frac{8}{80} = \frac{p}{100}$ ; 10  
14. 40%   15. 4307 km<sup>2</sup>   16. 35

### Practice B

1.  $\frac{a}{320} = \frac{75}{100}$ ; 240   2.  $\frac{4}{40} = \frac{p}{100}$ ; 10  
3. The proportion was set up incorrectly.

$$\frac{50}{b} = \frac{20}{100}$$
$$50 \cdot 100 = 20b$$
$$\frac{50 \cdot 100}{20} = b$$
$$250 = b$$

4. B   5. C   6. A   7. 10%   8. 28%   9. 80  
10. 125   11. 12   12. 38   13. 45%   14. 300  
15. 11%   16. 18%   17. 23%   18. 20%  
19. 3514 km<sup>2</sup>   20. 60

### Practice C

1. A   2. C   3. B   4. 25%   5. 32%  
6. 120   7. 175   8. 60   9. 84   10. 45%  
11. 500   12. 44%   13. 87%   14. 69%  
15. What percent of 49 is 17?  
16. What number is 4% of 28?   17. 32 is 18% of what number?   18. 40%   19. 26,388 km<sup>2</sup>  
20. 40

**Lesson 9.2 continued**

21.  $\frac{216}{b} = \frac{14}{100}$ ; You should use the cross products property to solve the proportion because the variable is in the denominator.
22. The number is 5.

**Study Guide**

1.  $66\frac{2}{3}\%$  2. 25% 3. 21 4. 63  
5. 90 6. 75

**Challenge Practice**

1. 213 2. 2240 3. 875 4.  $66\frac{2}{3}\%$   
5.  $12.5z$  6. 8% 7. 55% 8.  $36.\bar{6}$  minutes

**Lesson 9.3****Teaching Guide**

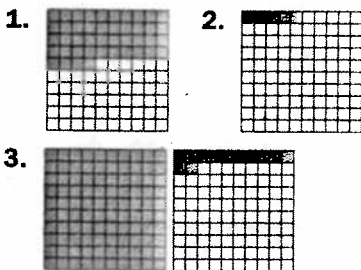
1. 0.16 2. 16% 3. The difference is that one has a percent sign and the other has the decimal point two places to the left.

**Activity Master**

1. 0.29 2. 0.73 3. 0.455 4. 0.145  
5. Yes. Divide the number by 100 (move the decimal point two places to the left) and remove the percent sign.  
6. 0.0075 7. 0.0005 8. 1.1 9. 2

**Practice A**

1. 0.125 2. 0.75 3. 0.4 4. right 5. left  
6. B 7. A 8. C 9. 0.62 10. 0.0015  
11. 4.1 12. 38% 13. 5.4% 14. 1290%  
15. 60% 16. 44.4% 17. 58.3% 18. \$1.05  
19.  $341.994 \text{ mi}^2$  20. \$24.50

**Practice B**

4. 0.34 5. 0.02 6. 1.75 7. 0.008  
8. 0.279 9. 0.0625 10. 29% 11. 5%

12. 30.8% 13. 413.2% 14. 1704%  
15. 0.688% 16. 38.9% 17. 71.4%  
18. 14.7% 19. 53.3% 20. 24.1%  
21. 23.2% 22. < 23. > 24. = 25. \$1.85  
26.  $464.124 \text{ mi}^2$  27. \$18.30

**Practice C**

1. 0.785 2. 0.036 3. 1.875 4. 0.0075  
5. 4.1235 6. 0.07014 7. 62% 8. 9%  
9. 2.5% 10. 40.4% 11. 121.7%  
12. 3145% 13. 68.8% 14. 54.2%  
15. 25.8% 16. 47.2% 17. 19.8%  
18. 31.4% 19. < 20. > 21. = 22. \$4.95  
23.  $243.178 \text{ mi}^2$  24. \$25.90  
25. The statement is not reasonable because 0.1% of 500 is 0.5, which is not a whole person.  
26. The statement is reasonable because 110% of a person's salary for last year would indicate an increase in salary for this year.  
27. 0.0021, 0.22%, 0.00221,  $\frac{11}{500}$   
28. 705%, 7.051,  $\frac{150}{20}$ , 7.509

**Study Guide**

1. 0.179 2. 0.06 3. 0.36 4. 0.824  
5. 54% 6. 79% 7. 9% 8. 11.3%  
9. 16.7% 10. 37.5% 11. 57.1%  
12. 72.7% 13. 0.0034 14. 4.2  
15. 0.000023 16. 0.0009 17. 0.2 kg or 200 g

**Challenge Practice**

1. 98.21% 2. 0.25% 3. 298% 4. 507.32%  
5. 77.8% 6. 9.7% 7. \$196 8. 57.1%

**Lesson 9.4****Teaching Guide**

1.  $a = 50\% \cdot 60 \text{ min.}$  2. 30 minutes  
3. 6 minutes 4. 14 minutes

**Practice A**

1. 310 2. 0.625 3. 104 4. 0.37 5. 0.04  
6. 1.2 7. C 8. A 9. B 10. C 11. B  
12. A 13. 120 14. 15 15. 15% 16. 65%

## Lesson 9.4 *continued*

17. 400 18. 100 19. 562,844 people  
20. 94,710 mi<sup>2</sup> 21. 2%

### Practice B

1. B 2. C 3. A 4. C 5. 150 6. 126  
7. 29% 8. 15% 9. 65% 10. 100  
11. 1125 12. 260 13. 89% 14. 75  
15. 30% of 80 16. 11,256,880 people  
17. 8180 weekly newspapers 18. 1%

### Practice C

1. 90 2. 189 3. 40% 4. 65% 5. 15%  
6. 1375 7. 1700 8. 310 9. 89% 10. 100  
11. < 12. = 13. > 14. < 15. 10% of 45  
16. 60% of 350 17. 75% of 25  
18. 5,628,440 people  
19. 1694 art books 20. 0.69%  
21. percent equation 22. 120% of 60

### Study Guide

1. 30 2. 119 3. 35% 4. 70% 5. 280  
6. 360 7. \$189.45

### Problem Solving Workshop: Mixed Problem Solving

1. a. 75; 51 b. 75 is the base, 24 is the part of the base,  $x$  is the percent; 75 is the base, 51 is the part of the base,  $y$  is the percent;  $\frac{24}{75} = \frac{x}{100}$ ;  $\frac{51}{75} = \frac{x}{100}$  c. 96 students; When you solve the first proportion from part (b), you find that 32% of the students know the rules of chess, and  $0.32(300) = 96$ . 2. 15 fish 3. 9 pictures; Because 75% of the photos developed properly,  $100\% - 75\%$ , or 25% of the photos did not develop properly, and  $0.25(36) = 9$ .  
4. Answers will vary. 5. a.  $\frac{39}{50}$ ;  $\frac{4}{25}$  b. 6%;  $\frac{3}{50}$  c. 39 ft<sup>3</sup> 6. Friday night; Saturday night's tips; If you know how much Cedric made on Saturday night in tips, you can multiply by 110%, or 1.1, to find how much Cedric made in tips on Friday night. 7. 0.42

### Challenge Practice

1. \$898.88 2. \$7.28 3. 24% 4. 52% girls and 48% boys 5. 38% 6. 53% 7. 38%  
8. 13 sixth graders, 12 seventh graders, and 10 eighth graders

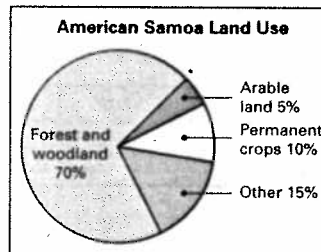
## Lesson 9.5

### Teaching Guide

1. 842 2. section A = 35%, section B = 40%, section C = 25% 3.  $\angle A = 126^\circ$ ,  $\angle B = 144^\circ$ ,  $\angle C = 90^\circ$

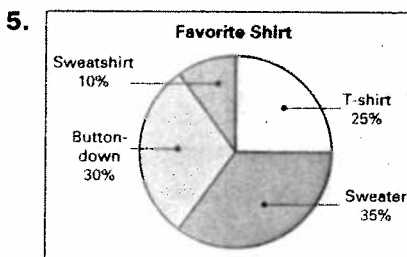
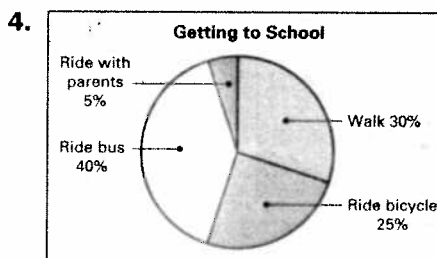
### Practice A

1. 9 2. 10 3. 84 4. 17 5. 30 6. 128  
7. public library 8. Internet 9. 60%  
10. 54° 11. 144° 12. 270° 13. B 14. A  
15. C 16.

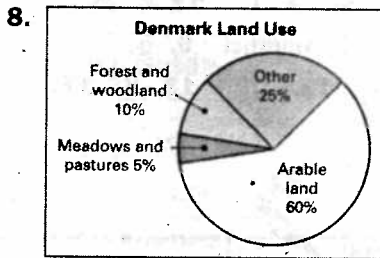
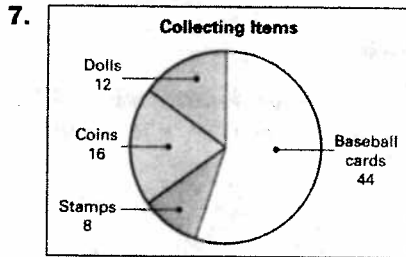
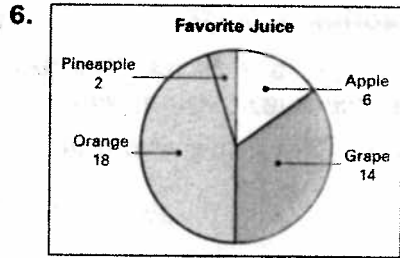


### Practice B

1. 87% 2. 91% 3. 198°



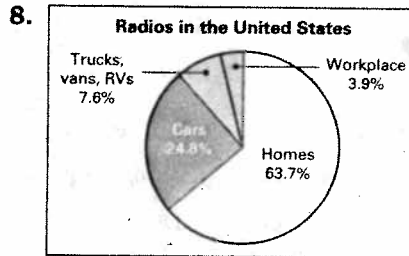
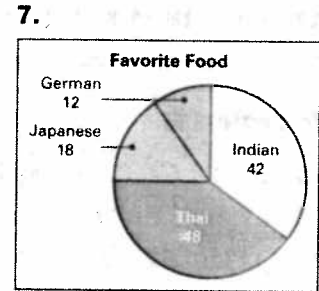
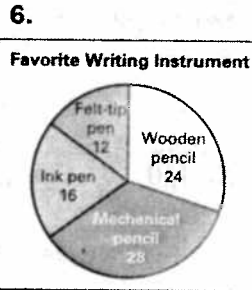
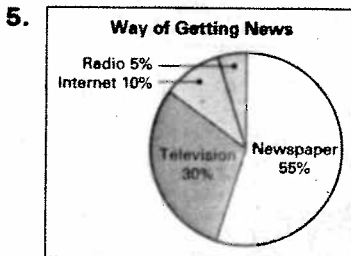
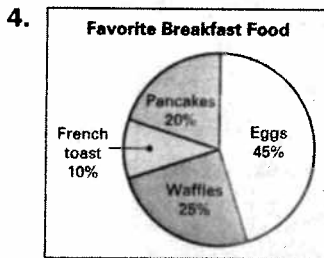
## Lesson 9.5 continued



9. C 10. A 11. B

### Practice C

1. 12% 2. 85% 3. 90°

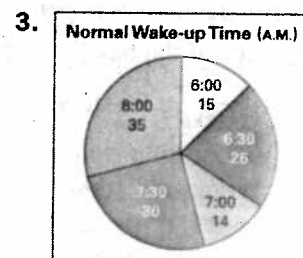
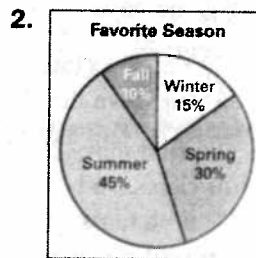


9. 85% 10. 42.5% 11. 12.5%

12. First, find the angle measure for each section by multiplying each percent, in decimal form, by  $360^\circ$ . Then draw a circle using a compass. Use a protractor to draw the angles and then label each section. Finally, write a title on the graph.

### Study Guide

1. *Sample Answer:* The largest section in the circle graph is labeled "warthog." So, this is the most liked zoo animal. More students liked pandas than elephants. Together, elephants and antelopes are more popular than pandas.



### Challenge Practice

1.  $256^\circ$  2.  $135^\circ$  3.  $45^\circ$  4. 2.5%  
 5. 42.5% 6. 94.4% 7. A = 47%, B = 23%, C = 18%, D = 7%, E = 5%

## Lesson 9.6

### Teaching Guide

1. \$2.20 2. 25% increase 3. 5% decrease

### Practice A

1. 37.5% 2. 77.8% 3. 45.5% 4. 2 5. 21  
 6. 27 7. greater than 8. less than  
 9. increase; 50% 10. decrease; 25%  
 11. increase; 20% 12. increase; 80%  
 13. decrease; 35% 14. decrease; 45%  
 15. B 16. C 17. 50% 18. 14%  
 19. 70.8 million pieces of Express Mail

### Practice B

1. B 2. D 3. A 4. C 5. increase; 75%  
 6. decrease; 30% 7. increase; 140%  
 8. increase; 10% 9. increase; 25%  
 10. decrease; 40% 11. decrease; 95%  
 12. increase; 5% 13. increase; 60%  
 14. The amount of the increase was found, not the new amount.

$$\begin{aligned} \text{New amount} &= 140 + 0.95 \cdot 140 \\ &= 140 + 133 \\ &= 273 \end{aligned}$$

15. 192 16. 81 17. 51 18. 209 19. 678  
 20. 3 21. 4% 22. 40%  
 23. 1127.1 million pieces of Parcel Post mail

### Practice C

1. increase; 150% 2. decrease; 12%  
 3. increase; 45% 4. increase; 25%  
 5. decrease; 75% 6. increase; 95%  
 7. increase; 5% 8. decrease; 60%  
 9. decrease; 40% 10. 345 11. 21 12. 430  
 13. 210 14. 39 15. 2 16. 10% 17. 0.5%  
 18. 1222.48 million pieces of Priority Mail  
 19. \$1026 20. 65  
 21. The results are the same.

### Study Guide

1. 50% 2. 25% 3. 48% 4. 60% 5. 75%

6. 74% 7. 48 students

### Real-World Problem Solving

1.

Employee	Percent of change	Original Salary
Ciara	8%	\$54,275
John	6%	\$37,244
Adam	3%	\$42,580
Yvonne	5%	\$63,300
Kiran	11%	\$72,120
Josh	4%	\$49,300

Employee	Increase	New Salary
Ciara	\$4342	\$58,617
John	\$2,234.64	\$39,478.64
Adam	\$1,277.40	\$43,857.40
Yvonne	\$3165	\$66,465
Kiran	\$7,933.20	\$80,053.20
Josh	\$1972	\$51,272

### Challenge Practice

1. 20.1% 2. 8.4% 3. 26.8% 4. 40 ounces  
 5.  $x$ ;  $2x$  6. 1.5y; 2.5y

## Lesson 9.7

### Teaching Guide

1. increase 2. \$0.54 3. \$1.35 4. \$10.89

### Practice A

1. 234 2. 20.25 3. 14.4 4. amount of markup; wholesale price 5. amount of discount; original price 6. C 7. B 8. A 9. \$34  
 10. \$78 11. \$38.50 12. \$108 13. \$88  
 14. \$62.50 15. \$31.80 16. \$85.60 17. \$54  
 18. \$46.80 19. \$55 20. \$17.64

### Practice B

1. C 2. \$35.70 3. \$43.40 4. \$132  
 5. \$265.50 6. \$25.44 7. \$41.30 8. \$68.64  
 9. \$289.94 10. \$57.78

## Lesson 9.7 continued

11. 6% was written as a decimal incorrectly.  
 Total cost =  $49 + (0.06 + 0.18) \times 49$   
 $= \$60.76$
12. 5% 13. 20% 14. 33% 15. \$38.48  
 16. \$218.25 17. \$10.16

### Practice C

1. D 2. \$42.25 3. \$40.80 4. \$148.50  
 5. \$279.30 6. \$33.92 7. \$46.20 8. \$34.16  
 9. \$55.80 10. 5% 11. 33% 12. 8%
13. 10% 14. 18% 15. 12% 16. The total cost of the outfit is \$65.80, which is greater than your \$60 budget. So, the outfit is outside of your budget. 17. \$139.98 18. You spent more on the total bill. 19. \$90 20. Find the tip by mentally multiplying \$25 by 0.1, then multiplying \$25 by 0.08. Then add the results.

### Study Guide

1. \$41.25 2. \$15.04 3. \$16.83 4. \$87.75  
 5. \$47.50

### Problem Solving Workshop: Using Alternative Methods

1. \$36 2. \$48.75 3. \$83.20 4. \$144  
 5. The student incorrectly multiplied the original price by 0.6, not 0.4. The correct answer is \$16.

### Real-World Problem Solving

1. \$1.20, \$6.80 2. \$3.00, \$12.00  
 3. \$6.30, \$14.70 4. \$1.80, \$16.20  
 5. \$10.00, \$15.00 6. yes

### Challenge Practice

1. \$12.14 2. \$53.59 3. \$2.62 4. \$119.68  
 5. 92% 6. \$32 7. \$21.59 8. 67%

## Lesson 9.8

### Teaching Guide

1. \$6 2. 3% 3. \$204 4. \$209

### Practice A

1.  $\frac{1}{2}$  2.  $\frac{2}{3}$  3.  $\frac{5}{6}$  4. 2 years 5. \$570  
 6. \$500 7. \$70 8. 7% 9. \$3; \$53

10. \$18.75; \$143.75 11. \$1.50; \$76.50  
 12. 5% 13. 8% 14. 10% 15. 3 years  
 16. 10 years 17. 5 years 18. \$371 19. 6%  
 20. 2 years

### Practice B

1. C 2. \$75; \$450 3. \$16.68; \$294.68  
 4. \$25.30; \$2325.30 5. \$46.36; \$4926.36  
 6. \$81; \$1881 7. \$54; \$654
8. The values for the principle and the simple interest were switched when the equation was set up.

$$350 = (1400)(0.1)t$$

$$\frac{350}{(1400)(0.1)} = t$$

$$2.5 = t; 2.5 \text{ years}$$

9. \$900 10. \$750 11. 6% 12. 8 years  
 13. \$45.36 14. \$1165 15. \$427.66  
 16. 2.5% 17. 2 years

### Practice C

1. B 2. \$18.60; \$483.60 3. \$13.51; \$399.51  
 4. \$366.30; \$4066.30 5. \$61.74; \$5206.74  
 6. \$36.34; \$1932.34 7. \$627.12; \$2771.12  
 8. \$1137.50 9. \$5200 10. 8% 11. 4 years  
 12. 4% 13. 5 months 14. \$508.43  
 15. 5.5% 16. 3 years 17. Find the amount of interest by subtracting the ending balance from the beginning balance. Divide the amount of interest by the product of the beginning balance and the amount of time  $t$  in years the money has been in the account. 18. six-month certificate of deposit

### Study Guide

1. \$2.80; \$162.80 2. \$291.60; \$3531.60  
 3. \$75; \$5075 4. \$17.40; \$307.40 5. 12%  
 6. 9 years

### Problem Solving Workshop: Mixed Problem Solving

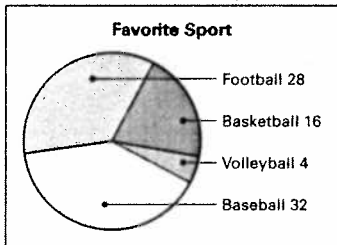
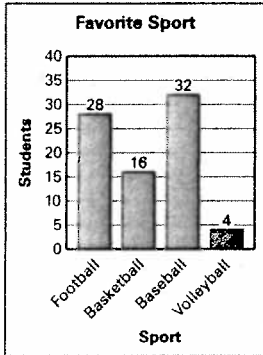
1. a.  $150 \text{ ft}^2$ ;  $120 \text{ ft}^2$  b. *Sample Answer:* 8 ft by 15 ft c. Based on sample answer given in (b): width decreased by 20%, length remained the same.

## Lesson 9.8 *continued*

2. No; the total cost of the movies is \$41.13, which is more than the \$40 on the gift card.

3. 13 students 4. Answers will vary. 5. No, they are below the original prices; *Sample Answer:* Assume that the original price of a piece of gym equipment is \$100. A 10% increase would make the price \$110. If you decrease \$110 by 10%, the new price is \$99, which is less than the original price of \$100.

6.



the circle graph

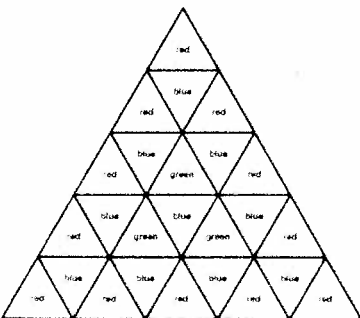
7. \$24.56 8. 2.5%; solve the equation  $3.75 = 60r(2.5)$  for  $r$

### Challenge Practice

1. \$264.06 2. 26.6 years 3. 26.6 years  
 4. \$434.78 5. \$1548 6. about 1.07%  
 7. 1.2%

## Review and Projects

### Chapter Review Games and Activities



1. 12 red triangles 2. about a 48% decrease  
 3. 9 blue triangles 4. about a 69% decrease  
 5. 3 green triangles 6.  $\frac{12}{25}$ ; 48% 7. 36%;  $\frac{9}{25}$   
 8. green 9. 4%; 0.04 10. 48%; 0.48  
 11. 60%; 0.6 12. 13 13. 7  
 14. about an 11% increase

### Real-Life Project

1.  
 cholesterol:

$$\begin{aligned} \%DV &= \frac{\text{amount of cholesterol}}{\text{recommended daily amount of cholesterol}} \\ &\times 100\% \\ &= \frac{0 \text{ mg}}{300 \text{ mg}} \times 100\% \\ &= 0\% \end{aligned}$$

sodium:

$$\begin{aligned} \%DV &= \frac{\text{amount of sodium}}{\text{recommended daily amount of sodium}} \times 100\% \\ &= \frac{300 \text{ mg}}{2400 \text{ mg}} \times 100\% \\ &= 12.5\% \approx 13\% \end{aligned}$$

carbohydrates:

$$\begin{aligned} \%DV &= \frac{\text{amount of carbohydrates}}{\text{recommended daily amount of carbohydrates}} \\ &\times 100\% \\ &= \frac{13 \text{ g}}{300 \text{ g}} \times 100\% \\ &= 4.3\% \approx 4\% \end{aligned}$$

dietary fiber:

$$\begin{aligned} \%DV &= \frac{\text{amount of dietary fiber}}{\text{recommended daily amount of dietary fiber}} \\ &\times 100\% \\ &= \frac{3 \text{ g}}{25 \text{ g}} \times 100\% \\ &= 12\% \end{aligned}$$

## Review and Projects *continued*

2. Answers will vary.

### Cooperative Project

Answers will vary.

### Independent Extra Credit Project

1. shooting percentage

$$= \frac{\text{goals}}{\text{total number of shots}} \times 100;$$

power-play percentage

$$= \frac{\text{power play goals}}{\text{total number of power plays}} \times 100$$

2-4. Answers will vary.

### Cumulative Practice

1. histogram, stem-and-leaf plot, or box-and-whisker plot; The data is numerical. You could select any of these displays depending on the purpose. 2. bar graph; The data will fall into categories. 3. *Sample Answer:*  $\frac{2}{9}, \frac{4}{18}$

4. *Sample Answer:*  $\frac{6}{25}, \frac{24}{100}$

5. *Sample Answer:*  $\frac{16}{30}, \frac{24}{45}$  6. GCF = 1;

LCM = 360 7. 0.625 8.  $1.\overline{06}$  9.  $6.\overline{09}$

10.  $10\frac{9}{50}$  11.  $\frac{7}{1000}$  12.  $1\frac{13}{20}$  13.  $\frac{6}{25}$  14.  $\frac{4}{15}$

15. 8 16. -13, -10, -4, 0, 2, 3, 9

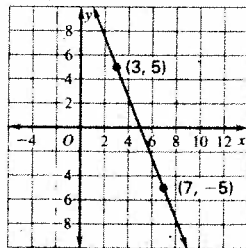
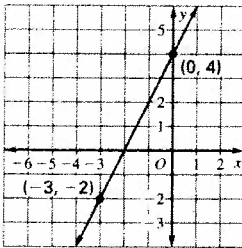
17. -41, -28, -9, 10, 11, 15 18. -33

19. 26 20. -32 21.  $\frac{9}{20}, \frac{20}{9}, -\frac{9}{20}$

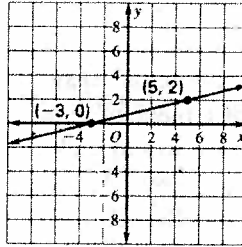
22.  $\frac{13}{8}, \frac{8}{13}, -\frac{13}{8}$  23.  $-\frac{7}{1}, -\frac{1}{7}, 7$

24. slope = 2;

25. slope =  $-\frac{5}{2}$ ;



26. slope =  $\frac{1}{4}$ ;

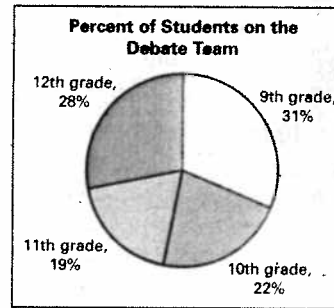


27. 21 28. 36 29. 65% 30. 25% 31. 21

32. 4.63% 33. 180% 34. 0.56 35. 0.007

36. 250 37. 64%

38.



39. 12%

40. 32.5% 41. \$24.65; \$26.13 42. 5%