

7-1 Skills Practice**Fractions and Percents**

Write each percent as a fraction or mixed number in simplest form.

1. 55%

2. 2%

3. $5\frac{1}{2}\%$

4. 30%

5. 300%

6. 12%

7. 50%

8. 90%

9. 85%

10. 28.2%

11. 0.25%

12. 0.2%

13. 7.5%

14. 6%

15. 10%

16. 275%

Write each fraction as a percent. Round to the nearest hundredth.

17. $\frac{3}{5}$

18. $\frac{11}{20}$

19. $\frac{1}{4}$

20. $\frac{5}{8}$

21. $\frac{23}{4}$

22. $\frac{4}{5}$

23. $\frac{3}{25}$

24. $\frac{7}{3}$

25. $2\frac{3}{10}$

26. $\frac{1}{6}$

27. $\frac{3}{4}$

28. $\frac{9}{10}$

29. $\frac{23}{50}$

30. $\frac{3}{8}$

31. $\frac{7}{5}$

32. $\frac{5}{4}$

7-1 Word Problem Practice**Fractions and Percents**

- 1. ADVERTISING** In a recent year, outdoor advertisements amounted to 2.2% of all advertising dollars spent in the U.S. What fraction is this?

- 2. GEOGRAPHY** The area of continental United States is about 3.8 million square miles. The table below shows what percent of the total area the five largest states in the U.S. make up. What fraction of the total area does Texas make up?

Percent of Total U.S. Area	
State	Percent
Alaska	17%
Texas	7%
California	4%
Montana	4%
New Mexico	3%

- 3. SCHOOL** Shandi correctly answered 15 out of 20 problems on her science test. What percent correct is this?

- 4. SCIENCE** Beavers can hold their breath under water for 45 minutes. What percent of a day is this?

- 5. SPORTS** The school baseball team won 34 and tied 3 of their 52 games.
- What fraction of their games did the team lose?
 - What percent of their games did they lose? Round to the nearest hundredth.
 - What percent of their games did they win? Round to the nearest hundredth.
 - What percent of their games did they tie? Round to the nearest hundredth.

7-2 Practice**Fractions, Decimals, and Percents**

Write each percent as decimal.

- | | | | |
|----------|-----------------------|-----------------------|--------------------|
| 1. 17% | 2. $6\frac{2}{3}\%$ | 3. $11\frac{3}{4}\%$ | 4. 9.2% |
| 5. 800% | 6. 43% | 7. 20% | 8. $\frac{3}{8}\%$ |
| 9. 75% | 10. 26.3% | 11. 0.12% | 12. 0.01% |
| 13. 5.5% | 14. $68\frac{4}{5}\%$ | 15. $\frac{17}{20}\%$ | 16. 480% |

Express each decimal or fraction as a percent. Round to the nearest tenth, if necessary.

- | | | | |
|---------------------|--------------------|---------------------|--------------------|
| 17. 0.95 | 18. 0.255 | 19. 0.7 | 20. 8.75 |
| 21. 0.0048 | 22. 0.06 | 23. 19.8 | 24. 71 |
| 25. $\frac{33}{40}$ | 26. $\frac{9}{32}$ | 27. $\frac{3}{8}$ | 28. $\frac{11}{4}$ |
| 29. $\frac{35}{8}$ | 30. $\frac{1}{5}$ | 31. $\frac{14}{25}$ | 32. $\frac{4}{11}$ |

33. SURVEYS In a survey, 44% of the people said they voted for Mr. Johnson, while $\frac{2}{5}$ of the people said they voted for Ms. Smith. Which group is larger? Explain.

34. LAUNDRY Ben is sorting his clothes to be washed. Twenty-two percent of his dirty clothes are whites, $\frac{7}{20}$ are darks, and 0.45 are lights. Which group will have the least amount of laundry?

7-2**Word Problem Practice****Fractions, Decimals, and Percents**

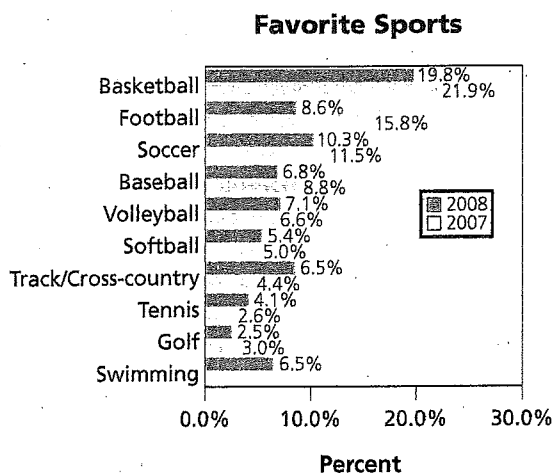
- 1. MUSIC** In Ms. Todd's class, 23.5% of the students prefer country music, $\frac{5}{8}$ prefer pop music, and 0.14 prefer classical music. Which group is the largest?

- 2. POLITICS** In the last election in Tasha's hometown, 7 out of 200 registered voters voted Independent. What percent of the registered voters is this?

- 3. ELECTRONICS** An online poll posted the following question. "How many personal electronic devices do you carry around at any one time?" One-twentieth of the respondents said zero, 21% said one, 0.27 said two, $\frac{6}{25}$ said three and 23% claimed to carry four or more. How many personal electronic devices do most people carry?

- 4. CARS** In an online poll, car owners were asked what type car they would buy if they were to buy a new car today. Two-fifths of the respondents said they would buy a gasoline-powered car, 0.13 selected a diesel engine car, and 43% chose a hybrid car. Which type of car did the largest group choose?

- 5. SPORTS** A survey conducted by a marketing group compared teens' sports preferences in recent years.



- a. Which sport(s) did about 0.1 of those surveyed say was their favorite in 2008?
- b. Which sport(s) was the favorite of about $\frac{1}{5}$ of those surveyed in 2007?
- c. Which sport(s) was the favorite of about 5% of those surveyed in 2007?

7-3 Practice**Using the Percent Proportion**

Use the percent proportion to solve each problem. Round to the nearest tenth, if necessary.

1. 128 is what percent of 640?
2. What percent of 21 is 28?
3. 3.4 is what percent of 5?
4. What percent of 930 is 720?
5. 15 is what percent of 120?
6. What percent of 24 is 21?
7. 36 is what percent of 40?
8. What percent of 48 is 0.6?
9. 12 is 80% of what number?
10. 15 is 4% of what number?
11. 33 is 90% of what number?
12. 0.24 is 36% of what number?
13. 19 is 10% of what number?
14. 49 is 77% of what number?
15. 42 is 7.5% of what number?
16. 65 is 5% of what number?
17. 27.5 is 2% of what number?
18. What is 15.8% of 21?
19. What is 65% of 441.1?
20. What is 0.4% of 82?
21. What is 7% of 329.8?
22. What is 88% of 1?
23. **SAVINGS** Stacia has saved \$36 toward the purchase of a new MP3 player. This is 28% of the total price. What is the price of the MP3 player?
24. **PAINT** About 42% of a paint mix is white. A painter orders 18 gallons of the paint mix. How much of it is white?

7-3 Word Problem Practice**Using the Percent Proportion**

1. CHORES A local Mothers group conducted a survey of 1074 youths age 19 and under about chores. 66% of those surveyed said they do not clean their rooms because they do not like to. How many of the 1074 youths gave that response?

2. RECYCLING The table shows the recent number of curbside recycling programs in four geographical regions of the United States. What percent of the country's recycling programs are in the Midwest?

Curbside Recycling Programs	
Region	Number
Northeast	3421
South	1677
Midwest	3572
West	1034
Total	9704

3. MARATHON A recent Boston Mayor's Cup race boasted the largest number of finishers in the history of the event with 825 finishers. 290 of the finishers were from the youth division. What percent of the finishers were not from the youth division? Round your answer to the nearest tenth.

4. EDUCATION Trevor received a score of 96% on his social studies test. If he answered 24 of the questions correctly, how many questions were on the test?

5. HEALTH The U.S. Food and Drug Administration requires food packagers to provide nutritional information about the food in the packaging. The label shown at the right is from a small package of chicken tenderloins, brown rice, and mixed vegetables.

Nutrition Facts	
Serving Size 1 Package (265 g)	
Servings Per Container 1	
Amount Per Serving	
Calories 240	Calories from Fat 50
% Daily Value*	
Total Fat 6 g	8%
Saturated Fat 3.5 g	18%
Trans Fat 0 g	
Polyunsaturated Fat .5 g	
Monounsaturated Fat .5 g	
Cholesterol 30 mg	9%
Sodium 660 mg	28%
Potassium 500 mg	14%
Total Carbohydrats 29 g	9%
Dietary Fiber 4 g	17%
Sugars 4 g	
Protein 18 g	

a. According to the label, the package contains 6 grams of fat, which is 8% of the daily value recommended for a 2000-Calorie diet. How many grams of fat are recommended for a 2000-Calorie diet?

b. What percent of the total Calories in this package come from fat?

c. The potassium in the package is 14% of the recommended daily value. What is the recommended daily value of potassium?

7-4 Practice***Find Percent of a Number Mentally***

Find the percent of each number mentally.

- | | | |
|------------------------------|----------------------------|-----------------------------|
| 1. 10% of 812 | 2. 50% of 1044 | 3. 40% of 25 |
| 4. 20% of 45 | 5. $62\frac{1}{2}\%$ of 80 | 6. 80% of 15 |
| 7. 30% of 400 | 8. 75% of 880 | 9. $16\frac{2}{3}\%$ of 72 |
| 10. $33\frac{1}{3}\%$ of 150 | 11. 60% of 2500 | 12. $37\frac{1}{2}\%$ of 48 |
| 13. 25% of 244 | 14. 900% of 3 | 15. 150% of 260 |

Estimate.

- | | | |
|----------------------------|----------------------------|----------------------------|
| 16. 31% of 62 | 17. 65% of 83 | 18. 87% of 850 |
| 19. 32% of 26 | 20. 47% of 213 | 21. 22% of 536 |
| 22. 68% of 12 | 23. 11% of 29 | 24. 78% of 4 |
| 25. $\frac{1}{2}\%$ of 381 | 26. $\frac{1}{6}\%$ of 567 | 27. $\frac{2}{3}\%$ of 856 |
| 28. 210% of 425 | 29. 153% of 801 | 30. 689% of 2981 |

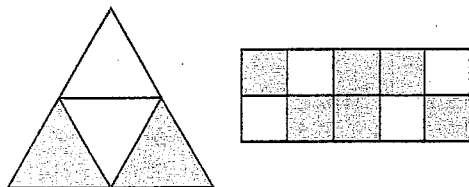
- 31. MONEY** Last week a waitress made \$204 in tips. This week she made 135% of that. About how much did she make this week?

7-4 Word Problem Practice**Find Percent of a Number Mentally**

1. GEOGRAPHY The state of Pennsylvania covers almost 29 million acres. Of the total acreage, about 53% is forest land. About how many acres of forest land are in the state of Pennsylvania?

2. ENVIRONMENT In a recent year, there were 320 endangered mammals in the world. About 75% of these mammals reside outside of the United States. About how many endangered mammals are not in the United States?

3. GAMES The figures below represent two game boards. The object of the game is to toss a bean bag so that it lands on a shaded region. Which game board gives a player the best chance of throwing a bean bag so that it lands on a shaded region? Explain.



4. SHOPPING Sydney has \$20 and wants to buy a CD of her favorite group. She finds a two-disc set of greatest hits that costs \$18.99. The sales tax in her state is 5%. Does she have enough money to buy the CD? Explain.

5. GEOGRAPHY The table shows the total area of eight states in square miles and the area of the state that is covered by water.

State	Area of state (square miles)	Water Area (square miles)
Michigan	96,716	39,912
Hawaii	10,931	4508
Rhode Island	1545	500
Massachusetts	10,555	2715
Delaware	2489	536
Maryland	12,407	2633
Florida	65,755	11,828
Wisconsin	65,498	11,188

a. Which state has a water area that is about 25% of the area of the state?

b. Which state has about one-third of its area covered by water?

c. Which two states have about the same percent of area covered by water?

7-6 Practice**Percent of Change**

Find the percent of change. Round to the nearest tenth, if necessary. Then state whether the percent of change is an *increase* or *decrease*.

1. from 4 m to 5 m
2. from 75 minutes to 100 minutes
3. from \$9.25 to \$6.50
4. from 45 quarts to 8 quarts
5. from 21 mm to 13 mm
6. from \$457 to \$1000
7. from \$39.50 to \$40.00
8. from 9 students to 856 students
9. from 24 kittens to 7 kittens
10. from 15 songs to 105 songs
11. from 31 mph to 25 mph
12. from 4 paintings to 13 paintings

Find the selling price for each item given the cost and the percent of markup.

13. MP3 player: \$150; 22% markup
14. sofa: \$600; 31.5% markup
15. television: \$669; 23% markup
16. dress: \$16.25; 35% markup
17. speakers: \$42; 27% markup
18. CD: \$8.99; $34\frac{4}{5}\%$ markup
19. **VIDEOS** A video store is selling previously owned DVDs for 40% off the regular price of \$15. What is the sale price of the DVDs?
20. **COOKIES** On Tuesday, a baker sold 132 cookies. On Wednesday, she sold 108 cookies. Find the percent of change to the nearest tenth of a percent.

7-6 Word Problem Practice**Percent of Change**

1. DVD Bill paid \$20 for a new DVD three years ago. Yesterday he paid \$15 for a new DVD. Find the percent of change.

2. TRAINING When Jan began training for a marathon, she could run 3 miles in the same amount of time she can now run 5 miles. What is the percent of change in Jan's running speed?

3. CENSUS According to the United States Census Bureau, the state of Texas had a population of 16,986,510 in 1990. Census data shows that in 2000, the population of Texas was 20,851,820. Find the percent of change.

4. INVESTMENT Jack bought a coin for \$200, which he later sold for \$175. Find the percent of change. Did Jack make a good investment? Explain.

5. TRAVEL The following table shows the number of visitors to Yellowstone National Park from 2000 to 2006.

Year	Number of Visitors
2000	2,838,233
2001	2,758,526
2002	2,973,677
2003	3,019,375
2004	2,868,317
2005	2,835,649
2006	2,870,293

a. What was the percent of change in the number of tourists between 2000 and 2001?

b. Determine between which years Yellowstone National Park experienced the highest percent of decrease of visitors and find the percent of change.

c. Determine between which years Yellowstone National Park experienced the highest percent of increase in visitors and find the percent of change.

7-7 Practice**Simple and Compound Interest**

Find the simple interest to the nearest cent.

1. \$1300 at 6% for 7 years
2. \$250 at 8% for 9 months
3. \$725 at 3.25% for 6 months
4. \$1900 at 5.5% for 36 months
5. \$920 at 10.5% for 30 months
6. \$1100 at 13% for 54 months
7. \$550 at 5.75% for 4 years
8. \$875 at 2.3% for 3 months
9. \$22,800 at 9.3% for 33 months
10. \$54,600 at 4.25% for 42 months

Find the total amount in each account to the nearest cent if the interest is compounded annually.

11. \$450 at 5% for 3 years
12. \$580 at 11.8% for 4 years
13. \$6550 at 6.5% for 2 years
14. \$2750 at 2.75% for 3 years
15. \$1900 at 9% for 2 years
16. \$13,900 at 12.5% for 5 years
17. \$600 at 6% for 4 years
18. \$2400 at 5.3% for 5 years
19. \$64,000 at 3.25% for 3 years
20. \$312,000 at 1.99% for 4 years
21. **INSTRUMENTS** Lane borrowed \$1200 for a new drum set. She will be paying 6.5% in simple interest over the next 2 years. What is the total amount of interest she will be paying on the loan?
22. **SAVINGS** Luke puts \$4800 in a savings account. He earns \$16 each month for the next 60 months. Find the simple interest rate for his savings account.
23. **CARS** Toya has a car loan of \$8500. Over the course of the loan, she paid a total of \$5525 in interest at a rate of 13%. How many months was the car loan?

7-7**Word Problem Practice****Simple and Compound Interest**

1. COLLEGE Donnell borrowed \$5650 for his first semester of college. He will be paying 6.5% in simple interest over the next 5 years. What is the total amount of interest he will be paying on the loan?

2. INVESTMENT Gabe placed \$2000 in a certificate of deposit. He earns \$10 each month for the next 36 months. Find the annual simple interest rate for his certificate of deposit.

3. LOANS T.J. had a car loan for \$5800. Over the course of the loan, he paid a total of \$1508 in interest at a rate of 6.5%. Over how many months did T.J. pay off the car loan?

4. COMPUTERS Lin borrowed \$950 for a new laptop. She will pay \$25.80 each month for the next 48 months. Find the simple interest rate for her loan. (Round to the nearest tenth of a percent.)

5. SAVINGS The local Bank and Credit Union offers different interest rates on their savings accounts. Use the table below to answer the questions.

Savings Account Options		
Location	Rate	Type of Interest
Credit Union	3.5%	Compound Annual
Bank	3.75%	Simple

- a. How much will an initial investment of \$2500 at the Credit Union be worth after 5 years?
- b. How much will an initial investment of \$2500 at the Bank be worth after 5 years?
- c. If the Bank compounded the interest annually, what would the yield on that same investment be after 5 years?

7-8 Skills Practice**Circle Graphs**

Construct a circle graph for each set of data.

1. **School Night Bedtimes**

Time	Percent
8:00 P.M. – 8:59 P.M.	7
9:00 P.M. – 9:59 P.M.	50
10:00 P.M. – 10:59 P.M.	42
11:00 P.M. or later	1

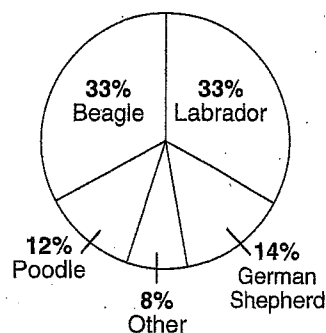
2. **Number of Books Read over Summer Vacation**

Number	Percent
0	5
1	12
2	22
3	40
4	12
5 or more	9

3. **SAFETY** The circle graph at the right shows the results from a survey of 282 students ages 8–13 who were asked the question, “How often do you wear your bike helmet?” How many more students answered “Seldom or Never” than “Occasionally”?



4. **DOGS** The circle graph at the right shows the results from a survey of children of all ages about favorite breeds of dogs. Which two breeds were equally favored?

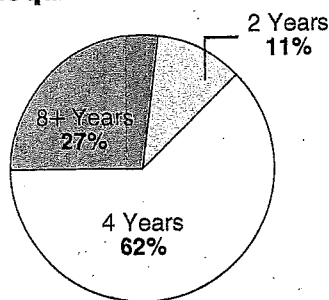
Favorite Dog Breeds

7-8 Word Problem Practice**Circle Graphs**

- 1. READING** Manuel surveyed people to find out where they liked to read. He constructed a circle graph of the data. The central angle for the portion of the graph that represents “next to the fireplace” measures 84° . If 21 people chose “next to the fireplace,” how many people were surveyed?

- 2. JOBS** While many jobs require a 4-year degree, some jobs require a 2-year degree and others require 8 or more years of college. Jenna did some research and then constructed a circle graph of her data. If Jenna researched 162 jobs, how many jobs did she find required a 2-year degree?

Number of Years of College Required for Certain Jobs

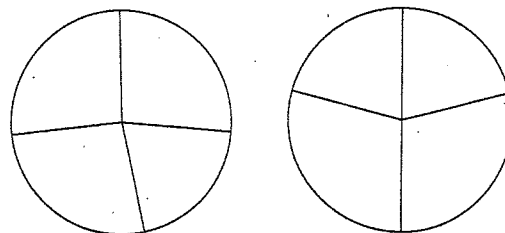


- 3. GPA** Jared constructed a circle graph of the GPA data of his classmates. The number of Bs was double the number of Ds. If 10% of the class received Ds, what is the central angle measure on Jared's graph for the section of students that received Bs?

- 4. MULTIPLE REPRESENTATIONS** The table shows the number of college credits each of the Malan sisters is taking in their freshman year of college.

Course	Anne	Amy
Math	4	3
English	4	4
History	3	3
Biology	4	4

- a. GRAPHICAL** Construct a circle graph for each sister's course load



- b. NUMERICAL** Do both sisters have the same percent of Biology credits? Explain your reasoning.

- c. ANALYTICAL** Describe any similarities and differences for each sister's circle graph.