Lesson 1 Problem-Solving Practice

Using the Percent Proportion

1. 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.** 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. 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.** 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. The U.S. Food and Drug Administration requires food packagers to provide nutritional information about the food in the packaging. The label shown is from a small package of chicken tenderloins, brown rice, and mixed vegetables.	**6.** Refer to the label shown in Exercise 5. The potassium in the package is 14% of the recommended daily value. What is the recommended daily value of potassium?

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	

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?

Lesson 1 Problem-Solving Practice

Using the Percent Proportion

1. 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?

about 709

2. 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? **about 36.8%**

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

3. 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.   **64.8%**

4. 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?   **25 questions**

5. The U.S. Food and Drug Administration requires food packagers to provide nutritional information about the food in the packaging. The label shown 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

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% Daily Value*

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Sodium 660 mg	28%
Potassium 500 mg	14%
Total Carbohydrats 29 g	9%
Dietary Fiber 4 g	17%
Sugars 4 g	
Protein 18 g	

75 g

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?

6. Refer to the label shown in Exercise 5. The potassium in the package is 14% of the recommended daily value. What is the recommended daily value of potassium?

about 3571 mg

Lesson 2 Problem-Solving Practice

Find Percent of a Number Mentally

1. 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. 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. 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.
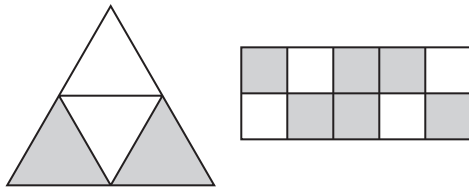
4. Sydney has $20 and wants to buy a CD of her favorite group. She finds a two-disc set of greatest hits that costs $18.99. The sales tax in her state is 5%. Does she have enough money to buy the CD? Explain.

5. 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

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

6. Refer to the table in Exercise 5. Which state has about one-third of its area covered by water?

Lesson 2 Problem-Solving Practice

Find Percent of a Number Mentally

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1. 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?   **about 15 million acres**

2. 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?
about 240 mammals

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3. 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.
The rectangle because it has 6 out of 10 parts shaded which equals 60% while the triangle has half or 50% of its area shaded.
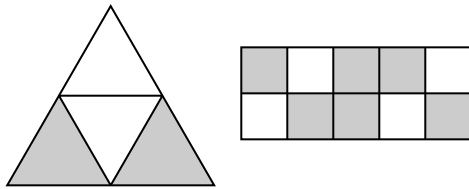
4. Sydney has $20 and wants to buy a CD of her favorite group. She finds a two-disc set of greatest hits that costs $18.99. The sales tax in her state is 5%. Does she have enough money to buy the CD? Explain.

yes; Sample answer: 0.05 × $20 would be $1.00. Since the CD is less than $19, the purchase price will be less than $20.

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5. 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
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Massachusetts	10,555	2715
Delaware	2489	536
Maryland	12,407	2633
Florida	65,755	11,828
Wisconsin	65,498	11,188

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

6. Refer to the table in Exercise 5. Which state has about one-third of its area covered by water?   **Rhode Island**

Lesson 3 Problem-Solving Practice

Using the Percent Equation

1. Bob is looking to buy a new baseball cap with his favorite team's logo on it. He finds one that normally sells for $32. If a 7% sales tax is added, what is the total cost?	**2.** Harold is interested in selling his father's baseball card collection. A local sports card dealer will sell the collection for Harold, but will collect a fee equal to 18% of the selling price. If the card dealer sells the baseball card collection for $325, what is the amount of the fee?
3. Martina bought a new pair of shoes. Her receipt is shown below. She wants to know the sales tax rate, but she spilled water on the receipt, blurring the information. What is the sales tax rate in Martina's state? **Shoes R Us** Receipt of Purchase ------------------------------------- Shoes, white $39.90 ------------------------------------- **Subtotal:** $39.90 **Sales Tax:** ▓▓▓▓ =========================== **Total:** $41.50	**4.** Bria has a coupon for an additional 25% off the purchase of any sale item at a garden store. She finds a birdbath that is on sale at 10% off the original price of $79. What is the price of the birdbath after both discounts are applied? Round your answer to the nearest cent.
5. South State University has 54,000 students enrolled. Enrollment predictions show that the number of students will grow 1.2% each year for the next 5 years. According to the enrollment prediction, how many students will be enrolled at South State University next year?	**6.** Chan bought a $600 computer, but his total was $648. What percent sales tax did he pay?

Lesson 3 Problem-Solving Practice

Using the Percent Equation

1. Bob is looking to buy a new baseball cap with his favorite team's logo on it. He finds one that normally sells for $32. If a 7% sales tax is added, what is the total cost? **$34.24**

2. Harold is interested in selling his father's baseball card collection. A local sports card dealer will sell the collection for Harold, but will collect a fee equal to 18% of the selling price. If the card dealer sells the baseball card collection for $325, what is the amount of the fee? **$58.50**

3. Martina bought a new pair of shoes. Her receipt is shown below. She wants to know the sales tax rate, but she spilled water on the receipt, blurring the information. What is the sales tax rate in Martina's state? **4%**

<div align="center">

Shoes R Us
Receipt of Purchase
- -
Shoes, white $39.90
- -
Subtotal: $39.90

Sales Tax:

==============================
Total: $41.50

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4. Bria has a coupon for an additional 25% off the purchase of any sale item at a garden store. She finds a birdbath that is on sale at 10% off the original price of $79. What is the price of the birdbath after both discounts are applied? Round your answer to the nearest cent. **$53.33**

5. South State University has 54,000 students enrolled. Enrollment predictions show that the number of students will grow 1.2% each year for the next 5 years. According to the enrollment prediction, how many students will be enrolled at South State University next year? **54,648 students**

6. Chan bought a $600 computer, but his total was $648. What percent sales tax did he pay? **8%**

Lesson 4 Problem-Solving Practice

Percent of Change

1. Bill paid $20 for a new DVD three years ago. Yesterday he paid $15 for a new DVD. Find the percent of change.	**2.** When Jan began training for a marathon, she could run 3 miles in the same amount of time she can now run 5 miles. Find the percent of change in Jan's running speed.
3. According to the United States Census Bureau, the state of Texas had a population of 20,851,820 in 2000. Census data shows that in 2010, the population of Texas was 25,145,561. Find the percent of change.	**4.** 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. The following table shows the number of visitors to Yellowstone National Park from 2000 to 2006.	**6.** Refer to the table in Exercise 5. Determine between which years Yellowstone National Park experienced the highest percent of decrease of visitors and find the percent of change.

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

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

Lesson 4 Problem-Solving Practice

Percent of Change

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1. Bill paid $20 for a new DVD three years ago. Yesterday he paid $15 for a new DVD. Find the percent of change.
25% decrease

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2. When Jan began training for a marathon, she could run 3 miles in the same amount of time she can now run 5 miles. Find the percent of change in Jan's running speed.
67% increase

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3. According to the United States Census Bureau, the state of Texas had a population of 20,851,820 in 2000. Census data shows that in 2010, the population of Texas was 25,145,561. Find the percent of change.
20.6% increase

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4. Jack bought a coin for $200, which he later sold for $175. Find the percent of change. Did Jack make a good investment? Explain.
12.5% decrease; No, a good investment would yield an increase in value.

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5. 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

What was the percent of change in the number of tourists between 2000 and 2001?   **2.8% decrease**

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6. Refer to the table in Exercise 5. Determine between which years Yellowstone National Park experienced the highest percent of decrease of visitors and find the percent of change.   **A 5% decrease between 2003 and 2004**

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Lesson 5 Problem-Solving Practice

Discount and Markup

1. Due to the increased gasoline surcharge for its deliveries, the Sunnyside Beach Snack Stand had to offset their losses by passing along this cost to its customers. As a result, the snack stand applied a 13% markup on all of its items. The original price for a foot-long combo basket was $5.75. What was the selling price (to the nearest cent) for the foot-long combo basket after the markup?

2. The Spinner Bike Shop was having a 40% off storewide going out of business sale. Ted wanted to purchase a mountain bike that had an original price of $229. What was the sale price of the mountain bike after the discount was applied?

3. In an effort to increase their membership enrollment, the Hamilton Fitness Center was offering a 15% discount (good for one full calendar year) off of the regular monthly membership fee to new members who joined anytime during the past month. The regular monthly membership fee is $35. What is the promotional discounted monthly rate?

4. Casey rented a college astronomy textbook from an online bookstore. The 6-month rental fee for the textbook was $85. There was a 12% markup for shipping and handling. What was the total cost of the rental after the markup was applied?

5. Senior citizens receive a 20% discount at the movie theater towards the purchase price of their tickets. The regular price for a movie ticket is $8.25. What is the discount price for a senior citizen ticket?

6. Due to the increased cost of its ingredients, DiStaola's Pizzeria had to apply a 7% price markup on the majority of its menu items. Originally, a 16-inch one-topping pizza would sell for $12.99. What is the selling price (to the nearest cent) of this same type of pizza with the markup?

Lesson 5 Problem-Solving Practice

Discount and Markup

1. Due to the increased gasoline surcharge for its deliveries, the Sunnyside Beach Snack Stand had to offset their losses by passing along this cost to its customers. As a result, the snack stand applied a 13% markup on all of its items. The original price for a foot-long combo basket was $5.75. What was the selling price (to the nearest cent) for the foot-long combo basket after the markup? **$6.50**

2. The Spinner Bike Shop was having a 40% off storewide going out of business sale. Ted wanted to purchase a mountain bike that had an original price of $229. What was the sale price of the mountain bike after the discount was applied? **$137.40**

3. In an effort to increase their membership enrollment, the Hamilton Fitness Center was offering a 15% discount (good for one full calendar year) off of the regular monthly membership fee to new members who joined anytime during the past month. The regular monthly membership fee is $35. What is the promotional discounted monthly rate? **$29.75**

4. Casey rented a college astronomy textbook from an online bookstore. The 6-month rental fee for the textbook was $85. There was a 12% markup for shipping and handling. What was the total cost of the rental after the markup was applied? **$95.20**

5. Senior citizens receive a 20% discount at the movie theater towards the purchase price of their tickets. The regular price for a movie ticket is $8.25. What is the discount price for a senior citizen ticket? **$6.60**

6. Due to the increased cost of its ingredients, DiStaola's Pizzeria had to apply a 7% price markup on the majority of its menu items. Originally, a 16-inch one-topping pizza would sell for $12.99. What is the selling price (to the nearest cent) of this same type of pizza with the markup? **$13.90**

Lesson 6 Problem-Solving Practice

Simple and Compound Interest

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

3. 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. 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. 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

How much will an initial investment of $2500 at the Credit Union be worth after 5 years?

6. Refer to the table in Exercise 5. How much will an initial investment of $2500 at the Bank be worth after 5 years?

Lesson 6 Problem-Solving Practice

Simple and Compound Interest

1. 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? **$1836.25**	**2.** Gabe placed $2000 in a certificate of deposit. He earns $10 in interest each month for the next 36 months. Find the annual simple interest rate for his certificate of deposit. **6%**
3. 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? **48 months**	**4.** 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.) **7.6%**
5. The local Bank and Credit Union offers different interest rates on their savings accounts. Use the table below to answer the questions.	**6.** Refer to the table in Exercise 5. How much will an initial investment of $2500 at the Bank be worth after 5 years? **$2968.75**

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

How much will an initial investment of $2500 at the Credit Union be worth after 5 years?   **$2969.21**

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