Name _____

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Chapter 6 Percents

Parent Signature _____ **Date** _____

Student Signature _____ **Date** _____

Teacher Signature _____ **Date** _____

Name _____ Class Period _____

Evaluation of Notes

Criteria	10 – Unsatisfactory	20 – Satisfactory	25 – Good	30 – Excellent	Score
Set-up and Neatness	• No name • Paper appears to have been scrunched, put through a blender, or used as a napkin	• Name • Handwriting is hard to read.	• Name and class period • Some extra notes added	• Name and class period • Many extra notes added	____
Completion of practice	• One or more sections are blank	• Some practice is not complete • Not all work is shown	• All practice is complete • Some work not shown	• All practice complete • All work shown	____
Text marking	• None of the notes are highlighted or underlined	• One or more sections are missing highlighting or underlining	• Each section contains highlighting or underlining.	• Every key point is highlighted or underlined and it is done so neatly.	____
Completed on time or within one day of being absent? +10 points!					____
				Total Score	

Evaluation of Homework

Criteria	0 – Unsatisfactory	30 – Satisfactory	40 – Good	50 – Excellent	Score
Set-up and Neatness	• No name • Paper appears to have been scrunched, put through a blender, or used as a napkin	• Name • Handwriting is hard to read.	• Name and class period • Some answers are boxed	• Name and class period • All answers are boxed	____
Completion of practice	• The homework is not done or attempted.	• Some problems are not done. • Not all work is shown	• All practice is complete • Some work not shown	• All practice complete • All work shown	____
				Total Score	

Name _____ **Ms. Abadie's** _____ **Period**

Chapter 6	Percents
MAFS.7.EE.2.3	Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies.
Essential Question	How does a decimal point move when you rewrite a percent as a decimal or decimal as a percent? *In this lesson I am learning how to convert numbers between fractions, decimals, and percents so I can use the form most appropriate in certain context.*
6.1 Percents and Decimals	**Writing Percents as Decimals** **Words** Remove the percent symbol. Then divide by 100, or just move the decimal point two places to the left. **Numbers** $23\% = 23.\% = 0.23$ **Writing Decimals as Percents** **Words** Multiply by 100, or just move the decimal point two places to the right. Then add a percent symbol. **Numbers** $0.36 = 0.36 = 36\%$
	MATCHING Match the decimal with its equivalent percent. **1.** 0.42 **2.** 4.02 **3.** 0.042 **4.** 0.0402 **A.** 4.02% **B.** 42% **C.** 4.2% **D.** 402% **5. OPEN-ENDED** Write three different decimals that are between 10% and 20%. **6. WHICH ONE DOESN'T BELONG?** Which one does *not* belong with the other three? Explain your reasoning. 70% 0.7 $\frac{7}{10}$ 0.07

Homework 6.1 Practice A #1-16

Write the percent as a decimal.

7. 78% **8.** 55% **9.** 18.5%

10. 57.4% **11.** 33% **12.** 9%

13. 47.63% **14.** 91.25% **15.** 166%

16. 217% **17.** 0.06% **18.** 0.034%

Homework 6.1 Practice A #18-33

Write the decimal as a percent.

19. 0.74 **20.** 0.52 **21.** 0.89

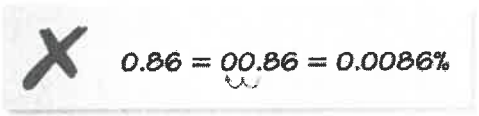
22. 0.768 **23.** 0.99 **24.** 0.49

25. 0.487 **26.** 0.128 **27.** 3.68

28. 5.12 **29.** 0.0371 **30.** 0.0046

Homework 6.1 Practice A #17, 34

31. ERROR ANALYSIS Describe and correct the error in writing 0.86 as a percent.



Homework 6.1 Practice A #35

32. MUSIC Thirty-six percent of the songs on your MP3 player are pop songs. Write this percent as a decimal.

Homework 6.1 Practice A #36-37

33. CAT About 0.34 of the length of a cat is its tail. Write this decimal as a percent.

Homework 6.1 Practice A #35

34. COMPUTER Write the percent of free space on the computer as a decimal.

Volume	Capacity	Free Space	% Free Space
(C:)	149 GB	133 GB	89 %

Homework 6.1 Practice A #40-43

Write the percent as a fraction in simplest form and as a decimal.

35. 36% **36.** 23.5% **37.** 16.24%

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6.1 Practice A

Write the percent as a decimal.

1. 81%	**2.** 78%	**3.** 5%	**4.** 8%
5. 40%	**6.** 60%	**7.** 23.7%	**8.** 16.75%
9. 150%	**10.** 210%	**11.** 186%	**12.** 416%
13. 100.8%	**14.** 5.17%	**15.** 0.4%	**16.** 0.04%

17. Describe and correct the error in writing 1.475% as a decimal.

$\times$ $1.475\% = 1.475\% = 147.5$

Write the decimal as a percent.

18. 0.66	**19.** 0.32	**20.** 0.51	**21.** 0.97
22. 0.01	**23.** 0.04	**24.** 0.312	**25.** 0.468
26. 0.5	**27.** 1.2	**28.** 1.08	**29.** 1.16
30. 0.003	**31.** 0.025	**32.** 0.0245	**33.** 2.025

34. Describe and correct the error in writing 1.8 as a percent.

$\times$ $1.8 = 1.8 = 18\%$

35. Fifty-four percent of the students in your class have moved at least one time. Write this percent as a decimal.

36. Only 0.15 of the total number of vehicles in your school parking lot are buses. What percent of the vehicles are buses?

37. You spent 0.88 of your allowance this week. What percent of your allowance did you spend?

38. On a history test, you get 86 out of a possible 100 points. Write a decimal and a percent that represent a score of 86 out of 100.

39. Of the fluids that you drink on a typical day, $\frac{1}{10}$ is milk and 50% is water. How many times more water do you drink than milk?

Write the percent as a fraction in simplest form and as a decimal.

40. 21%	**41.** 75%	**42.** 64%	**43.** 85%

MAFS.7.EE.2.3	Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies.
Essential Question	How can you order numbrs that are writen as fracions, decimals, and percents? *In this lesson I am learning how to convert between fractions, decimals, and percents so I can order them.*
6.2 Comparing and Ordering	When comparing fractions, decimals, and percents, write the numbers as ALL fractions, ALL decimals, or ALL percents.

1. **NUMBER SENSE** Copy and complete the table.
2. **NUMBER SENSE** How would you decide whether $\frac{3}{5}$ or 59% is greater? Explain.
3. **WHICH ONE DOESN'T BELONG?** Which one does *not* belong with the other three? Explain your reasoning.

40% $\frac{2}{5}$ 0.4 0.04

Fraction	Decimal	Percent
$\frac{18}{25}$	0.72	
$\frac{17}{20}$		85%
$\frac{13}{50}$		
	0.62	
		45%

Homework 6.2 Practice A #1-12

Tell which number is greater.

4. 0.9, 95%
5. 20%, 0.02
6. $\frac{37}{50}$, 37%
7. 50%, $\frac{13}{25}$
8. 0.086, 86%
9. 76%, 0.67
10. 60%, $\frac{5}{8}$
11. 0.12, 1.2%
12. 17%, $\frac{4}{25}$
13. 140%, 0.14
14. $\frac{1}{3}$, 30%
15. 80%, $\frac{7}{9}$

Homework 6.2 Practice A #14-19

Use a number line to order the numbers from least to greatest.

16. 38%, $\frac{8}{25}$, 0.41
17. 68%, 0.63, $\frac{13}{20}$

18. $\frac{43}{50}$, 0.91, $\frac{7}{8}$, 84%

19. 0.15%, $\frac{3}{20}$, 0.015

20. 2.62, $2\frac{2}{5}$, 26.8%, 2.26, 271%

21. $\frac{87}{200}$, 0.44, 43.7%, $\frac{21}{50}$

Homework 6.2 Practice A #22

22. TEST You answered 21 out of 25 questions correctly on a test. Did you reach your goal of getting at least 80%?

Homework 6.2 Practice A #23

23. POPULATION The table shows the portions of the world population that live in four countries. Order the countries by population from least to greatest.

Country	Brazil	India	Russia	United States
Portion of World Population	2.8%	$\frac{7}{40}$	$\frac{1}{50}$	0.044

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6.2 Practice A

Tell which number is greater.

1. $\frac{3}{4}$, 70%

2. $\frac{1}{2}$, 0.54

3. 0.21, 21%

4. $\frac{2}{3}$, 66%

5. 0.482, 49%

6. 16%, 0.108

7. $\frac{12}{25}$, 48%

8. $\frac{1}{10}$, 12%

9. 1.2, 11%

10. 58%, $\frac{31}{50}$

11. 5020%, $50\frac{1}{4}$

12. 12.25%, $\frac{1}{8}$

13. Describe and correct the error in comparing 0.7% and $\frac{17}{25}$.

$\times$ $\frac{17}{25} \overset{\times 4}{=} \frac{68}{100} = 0.68\%$

0.7% is greater than 0.68%, so 0.7% is the greater number.

Use a number line to order the numbers from least to greatest.

14. 0.64, $\frac{13}{20}$, 63%

15. 45%, 0.46, $\frac{11}{25}$

16. 0.12, $\frac{1}{8}$, 0.135, 13%

17. $\frac{15}{16}$, 90%, 0.925, $\frac{7}{8}$, 0.93

18. $3\frac{2}{3}$, 362%, 3.66, $3\frac{3}{5}$, 36

19. 0.3, 27.3%, $\frac{11}{40}$, 28%, 0.27

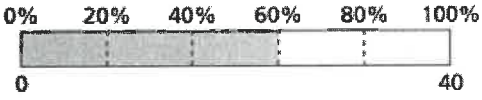
20. You use 8 fluid ounces of fruit juice in a recipe to make 64 fluid ounces of fruit punch. A fruit punch you can buy at the store has 10% real fruit juice. Which has a higher percent of fruit juice?

21. While shooting baskets at a basketball hoop, you make 36 out of 80 shots. Your friend makes 43.75% of the shots. Who made a higher percent?

22. To earn a bonus in a video game, you must find at least 60% of the hidden gems. You find 25 out of 40 gems. Do you get the bonus? Explain.

23. The table shows the portion of students at a middle school that are in each grade. Order the grades from the least to the greatest number of students.

Grade	6	7	8
Portion of students	$33\frac{1}{3}\%$	0.3125	$\frac{17}{48}$

MAFS.7.RP.1.3	Use proportional relationships to solve multistep ratio and percent problems.
Essential Question	How Can you write a proportion that solves percent problems? *In this lesson I will learn how I can write a proportion so I can use them to solve problems.*
6.3 The Percent Proportion	$\frac{is}{of} = \frac{\%}{100}$ $\frac{part}{whole} = \frac{\%}{100}$
	1. VOCABULARY Write the percent proportion in words. **2. WRITING** Explain how to use a proportion to find 30% of a number. **3. NUMBER SENSE** Write and solve the percent proportion represented by the model.  **4. WHICH ONE DOESN'T BELONG?** Which proportion does *not* belong with the other three? Explain your reasoning. $\frac{15}{w} = \frac{50}{100}$ $\frac{12}{15} = \frac{40}{n}$ $\frac{15}{25} = \frac{p}{100}$ $\frac{a}{20} = \frac{35}{100}$
Homework 6.3 Practice A #1-8, 11-14	**Write and solve a proportion to answer the question.** **5.** What number is 24% of 80? **6.** 15 is what percent of 40? **7.** 15 is 30% of what number? **8.** What number is 120% of 70? **9.** 20 is what percent of 52? **10.** 48 is 75% of what number? **11.** What percent of 25 is 12? **12.** 14 is what percent of 56? **13.** 25% of what number is 9? **14.** 36 is 0.9% of what number?

	15. 75% of 124 is what number? **16.** 110% of 90 is what number? **17.** What number is 0.4% of 40? **18.** 72 is what percent of 45?
	✗ $\frac{a}{w} = \frac{p}{100}$ $\frac{a}{34} = \frac{40}{100}$ $a = 13.6$ **19. ERROR ANALYSIS** Describe and correct the error in using the percent proportion to answer the question below. "40% of what number is 34?"
Homework 6.3 Practice A #9	**20. FITNESS** Of 140 seventh-grade students, 15% earn the Presidential Physical Fitness Award. How many students earn the award?
	21. COMMISSION A salesperson receives a 3% commission on sales. The salesperson receives \$180 in commission. What is the amount of sales?

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6.3 Practice A

Use a model to estimate the answer to the question. Use a ratio table to check your answer.

1. What number is 20% of 40?
2. 12 is what percent of 50?
3. 42 is 60% of what number?
4. What number is 150% of 92?

Write and solve a proportion to answer the question.

5. 40% of what number is 15?
6. 24 is 0.6% of what number?
7. What percent of 75 is 27?
8. 17 is what percent of 68?
9. Of the 60 seeds that you plant, 80% germinate. How many seeds germinate?
10. You are charged 6% sales tax. You purchase a new bicycle and pay $27 in sales tax. What is the purchase price of the bicycle?

Write and solve a proportion to answer the question.

11. 0.2 is what percent of 16?
12. 19.6 is 24.5% of what number?
13. $\frac{3}{5}$ is 30% of what number?
14. What number is 45% of $\frac{5}{9}$?
15. You are making 28 name badges for a committee. You complete 75% of these on Monday. How many do you have left to complete on Tuesday?
16. You and your friend are selling tickets for the orchestra concert. On Thursday, you sold 15 tickets and your friend sold 10 tickets.
    a. What percent of the tickets sold on Thursday did you sell?
    b. On Friday, you sold 9 tickets and your friend sold 16 tickets. What percent of the tickets sold on Friday did you sell?
    c. What percent of the total tickets sold on Thursday and Friday did you sell?

MAFS.7.EE.2.4	Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities.
Essential Question	How can you use an equivalent form of the percent proportion to write and solve an equation? *In this lesson I will learn how to write a percent equation so I can solve percent problems.*
6.4 The Percent Equation	Is means equals Of means multiply The "what" is the variable
	1. VOCABULARY Write the percent equation in words. **2. REASONING** A number n is 150% of number m. Is n *greater than*, *less than*, or *equal to* m? Explain your reasoning. **3. DIFFERENT WORDS, SAME QUESTION** Which is different? Find "both" answers. What number is 20% of 55? — 55 is 20% of what number? 20% of 55 is what number? — 0.2 • 55 is what number?
Homework 6.4 Practice A #1-8	**Write and solve an equation to answer the question.** **4.** What number is 24% of 80? **5.** 15 is what percent of 40? **6.** 15 is 30% of what number? **7.** What number is 120% of 70? **8.** 20 is what percent of 52? **9.** 48 is 75% of what number?

10. 20% of 150 is what number?

11. 45 is what percent of 60?

12. 35% of what number is 35?

13. 0.8% of 150 is what number?

14. 29 is what percent of 20?

15. 0.5% of what number is 12?

16. What percent of 300 is 51?

17. 120% of what number is 102?

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6.4 Practice A

Answer the question. Explain the method you chose.

1. 24 is what percent of 60?
2. 8 is 40% of what number?

Write and solve an equation to answer the question.

3. What number is 70% of 120?
4. 30 is what percent of 120?
5. 112 is 56% of what number?
6. 128 is what percent of 80?
7. What number is 140% of 45?
8. 15 is 6% of what number?
9. There are 35 competitors in a marathon. Sixty percent of these finished the race in under four hours. How many competitors finished the race in under four hours?
10. Your class is going on a field trip. Twenty-four students have turned in their permission slips so far. This is 80% of the students in the class. How many students are in the class?
11. You take a test with 32 questions on it. You answer 24 questions correctly. What percent of the questions do you answer correctly?
12. You have r rare coins, consisting of p pennies and n nickels.
    a. p is 20% of 190. How many pennies do you have?
    b. 190 is 200% of r. How many rare coins do you have?
    c. n is 60% of r. How many nickels do you have?
13. The table shows the sales receipt for your purchase.

Item	Price
top	p
earrings	$ 3.00 T
socks	$ 2.00
granola bar	$ 0.50 T
Subtotal	$13.00
Tax	$ 0.21
Total	$13.21

    a. The items with a "T" next to the price are subject to sales tax. What percent sales tax did you pay?
    b. Calculate the price of the top.
    c. The price you paid for the top was 60% of the original price. What was the original price of the top?

Tell whether the following statement is *true* or *false*. Explain your reasoning.

14. 120% of a whole number is always greater than the number.
15. You can find 0.5% of a number by multiplying the number by $\frac{5}{100}$.

15

MAFS.7.RP.1.3 MAFS.7.EE.1.2	Use proportional relationships to solve multistep ratio and percent problems. Understand that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related. For example, a + 0.05a = 1.05a means that "increase by 5%" is the same as "multiply by 1.05."
Essential Question	How can you find percents of increase or decrease? *In this lesson I will learn about percents of increase and decrease so I can descirbe changes in amounts as a percents.*
6.5 Percents of Increase and Decrease	$\frac{change}{original} = \frac{bigger-smaller}{first}$ Increase: $x + (\%\ as\ decimal)x$ Decrease: $x - (\%\ as\ decimal)x$ Percent Error: $\frac{error}{actual}$
	1. **VOCABULARY** How do you know whether a percent of change is a *percent of increase* or a *percent of decrease*? 2. **NUMBER SENSE** Without calculating, which has a greater percent of increase? • 5 bonus points on a 50-point exam • 5 bonus points on a 100-point exam 3. **WRITING** What does it mean to have a 100% decrease?
Homework 6.5 Practice A #1-4	**Find the new amount.** 4. 8 meters increased by 25% 5. 15 liters increased by 60% 6. 50 points decreased by 26% 7. 25 penalties decreased by 32%

Homework
6.5 Practice A
#5-10

Identify the percent of change as an *increase* or a *decrease*. Then find the percent of change. Round to the nearest tenth of a percent if necessary.

8. 12 inches to 36 inches

9. 75 people to 25 people

10. 50 pounds to 35 pounds

11. 24 songs to 78 songs

12. 10 gallons to 24 gallons

13. 72 paper clips to 63 paper clips

14. 16 centimeters to 44.2 centimeters

15. 68 miles to 42.5 miles

16. ERROR ANALYSIS Describe and correct the error in finding the percent increase from 18 to 26.

✗ $\frac{26 - 18}{26} \approx 0.31 = 31\%$

Homework
6.5 Practice A
#11

17. VIDEO GAME Last week, you finished Level 2 of a video game in 32 minutes. Today, you finish Level 2 in 28 minutes. What is your percent of change?

18. PIG You estimate that a baby pig weighs 20 pounds. The actual weight of the baby pig is 16 pounds. Find the percent error.

18

25. The percent of sales tax is 6%. What is the sales tax on a skateboard that costs $98?

26. You are shopping for a cell phone. At which store should you buy the cell phone?

Store	Original Price	Discount
A	$129	30%
B	$135	35%
C	$150	40%

Nicole bought a meal in a town that has no sales tax. She tips 20%.

Select all meals Nicole could buy for less than $15 total.

- ☐ $12.36
- ☐ $12.50
- ☐ $13.00
- ☐ $14.79
- ☐ $14.99

Maggie is buying a jacket. The expression shown represents the sales tax on the jacket price, j.

$0.08j$

Write an expression in terms of j to represent the total amount that Maggie spends on the jacket, including tax.

Which expression represents that x was doubled and then decreased by 25%?

A. $2x - 0.25x$
B. $0.25x - 2x$
C. $2(x - 0.25x)$
D. $2x - (2x - 0.25x)$

The cost of a barrel of beans, b, fluctuates by 17% in both directions during a three-month period.

Match each verbal description of the high and low cost of a barrel of beans with all equivalent expressions.

	$b + 0.17b$	$b - 0.17b$	$b - 1.17b$	$-0.17b$	$0.83b$	$1.17b$
b is increased by 17%	☐	☐	☐	☐	☐	☐
b is decreased by 17%	☐	☐	☐	☐	☐	☐

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6.5 Practice A

Find the new amount.

1. 12 dogs decreased by 25%
2. 140 fluid ounces increased by 45%
3. 100 textbooks increased by 99%
4. 75 students decreased by 80%

Identify the percent of change as an *increase* or a *decrease*. Then find the percent of change. Round to the nearest tenth of a percent, if necessary.

5. 5 cups to 8 cups
6. 150 pounds to 135 pounds
7. 14 dollars to 10 dollars
8. 28 seconds to 23 seconds
9. $\frac{1}{3}$ to $\frac{2}{3}$
10. $\frac{1}{3}$ to $\frac{1}{6}$
11. Yesterday your bus ride to school took 10 minutes. Today your bus ride took 12 minutes. What is the percent of change?
12. Yesterday 270 concert tickets were sold. Today 216 tickets were sold.
    a. Find the percent of change in the number of tickets sold from yesterday to today.
    b. Use the percent of change from part (a) to predict the number of tickets sold tomorrow. Round to the nearest ticket, if necessary.
    c. Find the predicted percent of change in the number of tickets sold from yesterday to tomorrow. Round to the nearest tenth of a percent, if necessary.
13. This month a band has 6 musicians. This is a 50% increase from the number of musicians in the band last month. How many musicians were in the band last month?
14. The sides of a square garden are 8 feet long.
    a. You enlarge the garden to create a 25% increase in the length of each side. Find the new length of the sides.
    b. Find the percent of change in the perimeter of the garden. Round to the nearest tenth of a percent, if necessary.
    c. Find the percent of change in the area of the garden. Round to the nearest tenth of a percent, if necessary.

MAFS.7.RP.1.3	Use proportional relationships to solve multistep ratio and percent problems.
Essential Question	How can you find discounts and selling prices? *In this lesson, I will learn about dicounts and markups, so I can calculate selling prices.*
6.6 Discounts and Markups	**Discounts** A **discount** is a decrease in the original price of an item. **Markups** To make a profit, stores charge more than what they pay. The increase from what the store pays to the selling price is called a **markup**.
Homework 6.6 Practice A #1-2	Find the sale price. First think, "That number minus that percent OF (multiply) that number."

Original Price	Percent of Discount	Equation	Sale Price
$80	20%	$80 - .20(80) = x$	
$42	15%		
$120	80%		
$112	32%		
$69.80	60%		

Homework 6.6 Practice A #3-4

Find the original price.

First ask yourself, "If that's the percent OFF what is the percent ON?"

Original Price	Percent of Discount	Equation	Sale Price
	25%	100% - 25% =75% 40 = .75 x	$40
	5%		$57
	80%		$90
	64%		$72
	15%		$146.54

Homework 6.6 Practice A #5-6

Find the percent discount.

First ask yourself, "How much money did I save?"

Original Price	Percent of Discount	Equation	Sale Price
$60		$60 - $45= $15 15 = x (60)	$45
$82			$65.60
$95			$61.75

Homework 6.6 Practice A #7	**Find the selling price.** **17.** Cost to store: $50 Markup: 10% **18.** Cost to store: $80 Markup: 60% **19.** Cost to store: $140 Markup: 25%
	Find the original price, discount, sale price, or selling price. **20.** Original price: $82 Discount: 10% Sale price: ? **21.** Original price: $125 Discount: ? Sale price: $81.25 **22.** Original price: ? Discount: 36% Sale price: $32 **23.** Cost to store: $32 Markup: 16% Selling price: ?
	James pays $120.00 for golf clubs that are on sale for 20% off at Golf Pros. At Nine Iron, the same clubs cost $8.00 less than they cost at Golf Pros. They are on sale for 13% off. What is the original cost of the clubs at Nine Iron?

Name_____ Date_____

6.6 Practice A

Copy and complete the table.

	Original Price	Percent of Discount	Sale Price
1.	$75	30%	
2.	$18	65%	
3.		30%	$42
4.		55%	$90
5.	$35		$28
6.	$55		$46.75

Find the cost to store or selling price.

7. Cost to store: $65

Markup: 25%

Selling price: __?__

8. Cost to store: __?__

Markup: 80%

Selling price: $122.40

9. The cost to a store for a box of cereal is $2.50. The store is selling the box of cereal for $3.50. What is the percent of markup?

10. A store pays $120 for a bicycle.

a. The store has a 60% markup policy. What is the selling price of the bicycle?

b. The store is now going out of business and is selling all of the bicycles at a 30% discount. What is the sale price of the bicycle?

c. Will the store make money or lose money on the bicycle? How much?

11. The selling price of a skateboard is $147. The store has a 75% markup policy. What is the cost of the skateboard to the store?

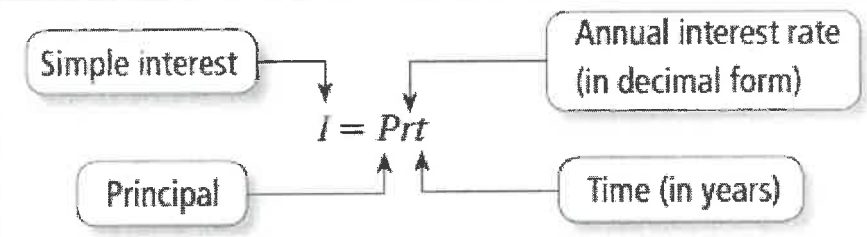
12. You buy a watch for $60.

a. There is a 6% sales tax. What is your total cost for the watch?

b. Your friend buys the same watch a month later. It is now sold at a discount of 15%. What is the new sale price?

c. What is your friend's total cost for the watch including tax?

d. What is the percent of change in the total cost?

MAFS.7.RP.1.3	Use proportional relationships to solve multistep ratio and percent problems.
Essential Question	How can you find the amount of simple interest earned on a savings account? How can you find the amount of interest owed on a loan? *In this lesson, I will use the simple interest formula so I can calculate interest earned or owed.*
6.7 Simple Interest	Simple Interest- is money earned on a savings account or an investment. It can also be money you pay for borrowing money. Interest- is the money paid or earned for the use of money. The principal- is the amount of money borrowed or deposited. 
	1. VOCABULARY Define each variable in $I = Prt$. **2. WRITING** In each situation, tell whether you would want a *higher* or *lower* interest rate. Explain your reasoning. **a.** you borrow money **b.** you open a savings account **3. REASONING** An account earns 6% simple interest. You want to find the interest earned on \$200 after 8 months. What conversions do you need to make before you can use the formula $I = Prt$?
Homework 6.7 Practice A #1-4, 10-11	**An account earns simple interest. (a) Find the interest earned. (b) Find the balance of the account.** **4.** \$600 at 5% for 2 years **5.** \$1500 at 4% for 5 years **6.** \$350 at 3% for 10 years **7.** \$1800 at 6.5% for 30 months

	8. \$700 at 8% for 6 years **9.** \$1675 at 4.6% for 4 years **10.** \$925 at 2% for 2.4 years **11.** \$5200 at 7.36% for 54 months
	12. ERROR ANALYSIS Describe and correct the error in finding the simple interest earned on \$500 at 6% for 18 months. ✗ $I = (500)(0.06)(18)$ $= \$540$
Homework 6.7 Practice A #5-6	**Find the annual interest rate.** **13.** $I = \$24, P = \$400, t = 2$ years **14.** $I = \$562.50, P = \$1500, t = 5$ years **15.** $I = \$54, P = \$900, t = 18$ months **16.** $I = \$160.67, P = \$2000, t = 8$ months
Homework 6.7 Practice A #7-9	**Find the amount of time.** **17.** $I = \$30, P = \$500, r = 3\%$ **18.** $I = \$720, P = \$1000, r = 9\%$ **19.** $I = \$54, P = \$800, r = 4.5\%$ **20.** $I = \$450, P = \$2400, r = 7.5\%$

21. BANKING A savings account earns 5% simple interest per year. The principal is $1200. What is the balance after 4 years?

22. SAVINGS You put $400 in an account. The account earns $18 simple interest in 9 months. What is the annual interest rate?

An account earns annual simple interest. Find the interest earned, principal, interest rate, or time.

23. Interest earned: $84
Principal: $600
Interest rate: 7%
Time: ?

24. Interest earned: ?
Principal: $1250
Interest rate: 3%
Time: 4 years

25. Interest earned: $39.60
Principal: ?
Interest rate: 11%
Time: 6 months

26. Interest earned: $3250
Principal: $5000
Interest rate: ?
Time: 10 years

An account earns annual simple interest. Find the balance of the account.

27. $250 at 4% for 1 year

28. $2000 at 9% for 6 months

27. You deposit $200 in an account earning 3.5% simple interest. How long will it take for the balance of the account to be $221? (Hint: first see that Interest earned is Balance minus the Principal)

Name_____ Date_____

6.7 Practice A

An account earns simple interest. (a) Find the interest earned. (b) Find the balance of the account.

1. \$200 at 3% for 5 years
2. \$750 at 8% for 2 years
3. \$1600 at 5% for 1 year
4. \$500 at 12% for 6 months

Find the annual interest rate.

5. $I = \$18$, $P = \$150$, $t = 6$ years
6. $I = \$164.50$, $P = \$940$, $t = 2.5$ years

Find the amount of time.

7. $I = \$72$, $P = \$600$, $r = 4\%$
8. $I = \$174$, $P = \$1450$, $r = 8\%$
9. You deposit \$350 in a savings account. The account earns 2.5% simple interest per year. What is the balance after 2 years?

Find the amount paid for the loan.

10. \$1000 at 8% for 5 years
11. \$3500 at 10% for 2 years
12. You deposit \$2000 in a savings account earning 5% simple interest. How long will it take for the balance of the account to be \$3800?
13. Your parents charge a family ski trip of \$3000 on a credit card.
    a. The simple interest rate is 20%. The charges are paid after 6 months. What is the amount of interest paid?
    b. What is the total amount paid for the ski trip?
14. Your parents could have taken out a loan for the ski trip in Exercise 13.
    a. The simple interest rate is 6% and the time for the loan is 2 years. What would have been the total amount paid for the \$3000 ski trip?
    b. What would be the monthly payment, if there were equal monthly payments?
    c. Which loan option costs less, the credit card or the loan?
15. You deposit \$1200 in an account earning 8% simple interest.
    a. What is the account balance after 1 year?
    b. At the end of the first year, you deposit the balance of the account in a CD (certificate of deposit) earning 8% simple interest. What is the account balance after another year?

Name _____ Date _____

Chapter 6 Take Home Quiz #1

For use after Section 6.4

Write the percent as a decimal.

1. 73%

2. 32.3%

3. 121.6%

Write the decimal as a percent.

4. 0.65

5. 1.35

6. 0.003

Use a number line to order the numbers from least to greatest.

7. $74\%, \frac{3}{4}, 0.76$

8. $26.2, 262\%, 2\frac{3}{5}$

9. The table shows the scores for three students on a math test. Who earned the highest grade?

Student	Score
Jim	$\frac{17}{20}$
Sarah	84%
Ben	0.86

Write and solve a proportion to answer the question.

10. What number is 80% of 65?

11. 32 is what percent of 200?

Write and solve an equation to answer the question.

12. 125 is what percent of 200?

13. 45 is 90% of what number?

14. You earned a 90% on a science test. You answered 18 questions correctly. How many questions were on the test?

15. The table shows the percentage of total athletes at a school that play certain sports. Each athlete only plays one sport. Twenty athletes play baseball. How many athletes are there at the school?

Sport	Baseball	Football	Other
Percentage	?%	30%	45%

Answers

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. See left.
8. See left.
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____

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Name _____ Date _____

Chapter 6

Take Home Quiz #2

For use after Section 6.7

Identify the percent of change as an *increase* or a *decrease*. Then find the percent of change. Round to the nearest tenth of a percent, if necessary.

1. 120 pounds to 180 pounds
2. 10 feet to 8 feet
3. 400 meters to 350 meters
4. 12 gallons to 36 gallons
5. You estimate that a small restaurant will serve 430 customers the first week it is open. The actual number of customers the first week is 400. Find the percent error.

Find the original price, discount, sale price, or selling price.

6. Original price: \$130
   Discount: 60%
   Sale price: ?
7. Original price: \$32
   Discount: ?
   Sale price: \$8
8. Original price: ?
   Discount: 20%
   Sale price: \$14.40
9. Cost to store: \$45
   Markup: 35%
   Selling price: ?

An account earns simple interest. Find the interest earned, principal, interest rate, or time.

10. Interest earned: ?
    Principal: \$1450
    Interest rate: 9%
    Time: 5 years
11. Interest earned: \$10
    Principal: \$250
    Interest rate: 4%
    Time: ?
12. Interest earned: \$40
    Principal: \$400
    Interest rate: ?
    Time: 2 years
13. Interest earned: \$45
    Principal: ?
    Interest rate: 3%
    Time: 2 years
14. Store A sells a watch for \$50 and offers a 5% discount. Store B sells the same watch for \$60 and offers a 20% discount. From which store should you buy?
15. A store sells a television for \$1000. Customers can choose to receive a 10% discount and pay it off with a loan at a simple interest rate of 4%, or they can choose to pay the full price and pay it off in 3 years with no interest. If the customer plans to pay it off in 3 years, which option is better?
16. A store offers a loan for \$900 to buy a computer. The terms of the loan are for 9% simple interest and equal monthly payments for three years. What is the monthly payment?

Answers

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____
16. _____

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Name _____ Date _____

Chapter 6 Ms. Abadie's Test Review

Write the percent as a decimal.

1. 0.05%
2. 128%
3. A teacher weights the final grade as follows: $\frac{1}{5}$ for homework, 25% for a project, 0.4 for quizzes, and 15% for the final exam. Order these categories from least weighted to greatest weighted.

In Exercises 4–6, use the table.

Question	6th-graders	7th-graders	8th-graders
Participate in sports?	$\frac{3}{20}$	18%	0.22
Participate in other school activities?	33%	0.45	$\frac{11}{25}$

4. Which category in the table shows the least portion?
5. Which is greater, the percent of 7th-graders or 8th-graders participating in other school activities?
6. Your friend says that at least twice as many 7th-graders participate in other activities as play sports. Is this true? Explain.

Write and solve a proportion to answer the question.

7. What number is 45% of 60?
8. 48 is what percent of 160?

Write and solve an equation to answer the question.

9. 8 is 0.5% of what number?
10. What percent of 130 is 182?

Identify the percent of change as an *increase* or *decrease*. Then find the percent of change. Round to the nearest tenth of a percent, if necessary.

11. $\frac{2}{5}$ to $\frac{4}{5}$
12. \$18.75 to \$18.60

Find the new amount.

13. 2000 miles increased by 33%
14. 140 degrees decreased by 65%

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Name _____ Date _____

Chapter 6

Find the original price, discount, sale price, or selling price.

15. Original price: $0.75
Discount: ?
Sale price: $0.15

16. Original price: ?
Discount: 30%
Sale price: $206.50

17. Original price: $24.50
Discount: 18%
Sale price: ?

18. Cost to store: $145
Markup: 150%
Selling price: ?

An account earns annual simple interest. Find the interest earned, principal, interest rate, or time.

19. Interest earned: ?
Principal: $800
Interest rate: 6.5%
Time: 2 years

20. Interest earned: $7.50
Principal: ?
Interest rate: 12%
Time: 3 months

21. Interest earned: $235.50
Principal: $7850
Interest rate: 2%
Time: ?

22. Interest earned: $837
Principal: $3100
Interest rate: ?
Time: 6 years

An account earns annual simple interest. Find the balance of the account.

23. $1400 at 1.25% for 3 years

24. $5000 at 6% for 9 months

25. The gas tank of your car is 40% full. There are 8 gallons of gas in the tank. What is the capacity of the gas tank?

26. You purchased a stock on Monday for $24 per share.

a. On Tuesday, the stock price was $36 per share. What was the percent increase?

b. On Wednesday, the stock price had a percent decrease of 50%. What was the new stock price?

27. The cost of manufacturing a printer is $35. The manufacturer has a markup of 15% when selling to a retailer. The retailer has a markup of 35%. What is the selling price of the printer?

28. How long will it take $500 to double at a simple interest rate of 5%?

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