

Student Name: _____ Homeroom: _____

6th Grade Math

Distance Learning Packet

Week 3

Directions:

Daily Directions

Read directions for the topic and work through the examples.

problems for each section. You can separate the sheets from the packet. For sections with enough space on the page, there is no extra workspace at the back of the packet.

Students should complete approximately 20-30 problems (approximately 20-30 problems)

Contact Information:

Teacher Contact Information

School Contact Information

Unit Rate:

Examples:

 <p>\$0.49/ lb.</p> <p>Bananas cost \$0.49 for Per pound</p>	 <p>20 miles in one hour</p>	 <p>75 beats in one minute.</p>	<p>Create your own unit rate:</p>
---	--	--	-----------------------------------

What it is:

- A comparison of two measurements in which one of the terms has a value of 1.

Examples:

- \$20 per ticket
- 15 miles per hour
- 12 slices per pizza
- 25 pages per hour
- 42 points per game
- 80 calories per cookie

Unit Rate

Why it's important:

- Once you know the unit rate, it is easy to find any missing quantity. For example, once we know each brick weighed 3 pounds, we could find the weight of any number of bricks. Once we knew the cost of each uniform was \$12, we could find the cost of an quantity of uniforms.

How to Find it:

- Divide.** For example, if 3 uniforms cost \$36, you can divide $36 \div 3 = 12$, so each uniform costs \$12. Or, if 4 bricks weigh 12 pounds you can divide $12 \div 4 = 3$, so each brick weighs 3 pounds.

Write each rate as a ratio, and then calculate the unit rate.

Rate	Ratio	Unit Rate
5 laps in 15 minutes		
60 inches in 5 feet		
18 degrees in 10 minutes		
\$30.00 for 8 meals		
500 miles in 12 hours		
32 points in 6 games		

1.) For \$15.00, you can buy a 12-gallon tub of cement from Home Depot. For \$25.00 you can buy an 18-gallon tub of cement from Lowes. Which store has a better deal?

2.) Sally's remote control car can go 120 ft in 30 seconds. Gary's car can go 275 ft in 55 seconds. Which car is faster? Explain your answer

6.8 Unit Rate (DOK 2)

Unit rate is the ratio of two measurements where the second term is 1. Examples of unit rate are miles per hour, expressed as $\frac{\text{number of miles}}{\text{number of hours}}$, the price per package as $\frac{\text{price per case}}{\text{number of packages}}$, or the pay rate per hour, expressed as $\frac{\text{total pay}}{\text{total hours worked}}$. Solving the division (ratio) problem will give you the answer.

Example: Mr. Callahan drove 420 miles in 7 hours. How many miles per hour did Mr. Callahan average?

Step 1: Set up the ratio: $\frac{\text{number of miles}}{\text{number of hours}} = \frac{420}{7}$.

Step 2: Divide: $\frac{420}{7} = 60$.

Answer: Mr. Callahan averaged 60 miles per hour.

Carefully read the rate problems below and solve. (DOK 2)

- Gloria drove 250 miles in five hours.
 - What was her average rate of speed?
 - At that speed, how far can she drive in 4.25 hours?
- Alonzo has to do 20 math test problems in 40 minutes. How many minutes per math problem does this give Alonzo?
- Malena walked two miles in 26 minutes.
 - How many minutes per mile did Malena walk?
 - How far at the same rate can she walk in 39 minutes?
- Mr. Paxon can pack 960 toy pachyderms in an eight hour shift.
 - How many toy pachyderms can Mr. Paxon pack per hour?
 - At that rate, how long will it take to pack 660 pachyderms?
- Nikki can bounce a basketball 900 times in 20 minutes. How many times can Nikki bounce a basketball in one minute?
- Mr. Vanderson drove 110 miles in two hours.
 - How fast did Mr. Vanderson drive?
 - How long will it take him to drive 550 miles?
- Dakota walked 12 blocks to his uncle's house in 30 minutes.
 - How many minutes did it take Dakota to walk one block?
 - If he walks for eight blocks at the same rate, how long will it take him?
- Mrs. Ulrich rolled 32 meatballs for her family in eight minutes.
 - How many minutes does it take Mrs. Ulrich to roll one meatball?
 - How long will it take to make 220 meatballs?

6.9 More Unit Rates (DOK 2)

The word “per” shows the rate. If you are given the rate, like tons per hour or inches per year, that would indicate a multiplication problem. Other problems ask you to calculate the rate, and those problems would use division. Make sure the answer you generate makes sense to the problem. If it doesn't make sense, you may have used the wrong operation.

Example 1: A factory produces $6\frac{1}{2}$ tons of concrete mix per hour. How many tons can be produced in $12\frac{1}{4}$ hours?
The rate is given in the problem, $6\frac{1}{2}$ tons per hour. The question asks how much mix would be produced in a certain number of hours, $12\frac{1}{4}$, so you would need to multiply:

$$6\frac{1}{2} \times 12\frac{1}{4} = \frac{13}{2} \times \frac{49}{4} = \frac{637}{8} = 79\frac{5}{8}$$

Since the factory can produce $6\frac{1}{2}$ tons of concrete mix in one hour, the factory would be able to produce $79\frac{5}{8}$ tons of concrete mix in $12\frac{1}{4}$ hours.

Example 2: The Mountain View Junior High gymnastics team boarded a bus to go to a gymnastics meet in another city. They were on the bus for 4.5 hours. They traveled 225 miles. What was the average rate of speed they traveled? Take the number of miles and divide by the number of hours: $225 \div 4.5 = 50$.
They traveled at an average of 50 miles per hour.

Solve the following rate problems. (DOK 2)

1. The Washington family went on a car trip during school break. The first day, they drove 12 hours at an average rate of speed of 52 miles per hour. How many miles did they travel on the first day of their trip?
2. Mrs. Ingram earns \$12.50 per hour. How much money will Mrs. Ingram earn in a 40 hour work week?
3. Nikki works at a restaurant. Part of her job includes pouring water into the pint size glasses. Nikki estimates that she pours 125 gallons of water each day. Knowing there are 8 pints per gallon, calculate how many pint size glasses Nikki pours in a five day work week.
4. Mr. Yarling works 60 hours per week. He earns \$15.00 per hour for the first 40 hours and “time and a half”, or \$22.50 per hour, for his overtime hours of 20 hours per week. How much money does Mr. Yarling earn in one 60 hour work week?
5. Mia spends about 1.25 hours per night, five nights a week, on homework. How many hours will Mia spend doing home work on 22 nights of homework? Give your answer in decimal form.
6. Ismael receives \$5.00 per week for his allowance. Every week he deposits \$2.00 into his savings account at the bank and asks for the remainder of the \$5.00 in quarters. How many quarters does Ismael have at the end of 4 weeks?

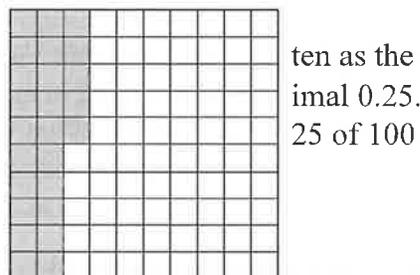
6.10 Unit Rates with Changing Units (DOK 2)

1. Sara bought six meters of cording for \$4.80. How much did she pay per centimeter?
2. Brad bought a three-yard piece of wood for \$7.20. How much did he pay per inch?
3. Bianca paid \$4.20 for an eight-ounce carton of whipping cream. How much did she pay per ounce?
4. Jamie paid \$0.08 per centimeter for red ribbon. How much did Jamie pay per meter?
5. Jenna bought eight yards of fabric for \$96.00. How much did she pay per foot?
6. Pete and his friends paid \$84.00 for seven hours of boat rental time. How much did they pay per minute?

6.11 Percents (DOK 2)

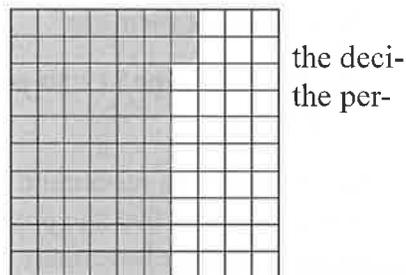
Percent means “out of 100.” In real life, percents are used to figure out taxes, tips, sales prices, and even grades. It is written as a number followed by the percent sign (%).

Example 1: 25% – This is read “twenty-five percent”. It means 25 out of 100. This can easily be written as the fraction $\frac{25}{100}$ ($\frac{1}{4}$ in simplest form) and as the decimal 0.25. The model to the right also shows 25% because 25 blocks are shaded.

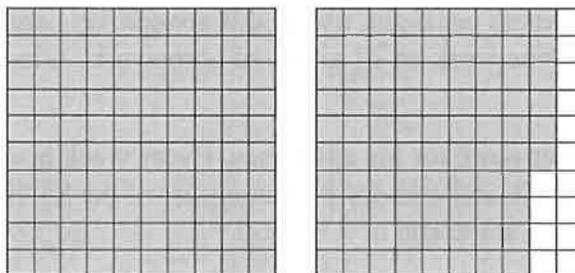


Changing Percents to Decimals and Decimals to Percents:

Example 2: 62% written as a decimal would be 0.62. To write a percent as a decimal, simply move the decimal place two spaces to the left and leave off the percent sign (%).



Example 3: 1.86 written as a percent would be 186%. To write a decimal as a percent, simply move the decimal place two spaces to the right and add a percent sign (%).



Changing Percents to Fractions and Fractions to Percents:

Example 4: 44% written as a fraction is $\frac{44}{100}$, which simplifies to $\frac{11}{25}$. To write a percent as a fraction, the percent number becomes the numerator (top number) of the fraction, and 100 becomes the denominator. Sometimes the fraction needs to be simplified.

Example 5: $\frac{3}{8}$ written as a decimal is $0.375 = 37.5\%$
To change a fraction to a percent, write the fraction as a decimal first. Then move the decimal two spaces to the right and add a percent (%).

Complete the chart. (DOK 2)

	Percent	Fraction	Decimal
1.	15%		
2.			0.39
3.		$\frac{1}{4}$	
4.	35%		
5.			0.99
6.		$\frac{33}{100}$	
7.			0.58
8.	18%		
9.		$\frac{29}{100}$	
10.	67%		

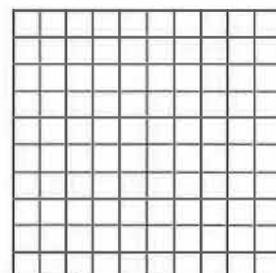
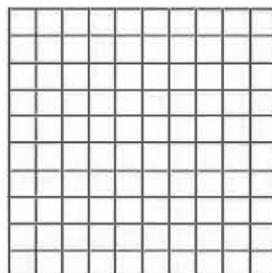
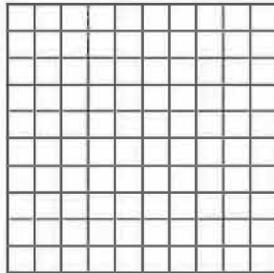
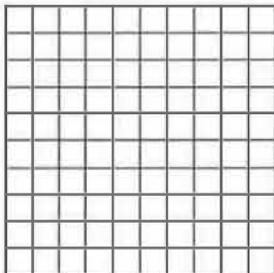
Shade each model to represent the percent indicated. (DOK 2)

11. 58%

12. 18%

13. 79%

14. 99%



6.12 Finding the Whole in a Percent Problem (DOK 2)

There are times when you may be given the part of a whole and the percent of the part, but the whole number is unknown.

Example: Three bottles of water represent 12.5% of a case of bottles of water. How many bottles are there in one whole case?

Step 1: Set up the following proportion,

$$\frac{\text{part}}{\text{whole}} = \frac{\%}{100}$$

Step 2: Find the whole. Use the proportion in step 1.

$$\frac{3}{x} = \frac{12.5}{100}$$

Step 3: Cross multiply to solve for x :

$$3 \times 100 = 300 \quad \longleftarrow \text{Multiply the diagonal numbers.}$$

$$300 \div 12.5 = 24 \quad \longleftarrow \text{Divide by the other number.}$$

$$24 = x$$

Answer: There are 24 bottles in the case.

Find the whole number in each problem. (DOK 2)

- Carlos works in a clothing store. Ten hours represent 25% of Carlo's work week. How many hours does Carlos work in one week?
- Mr. O'Grady harvested his garden. He put the tomatoes into boxes, each box representing 20% of his tomato harvest. Each box holds 24 tomatoes. How many tomatoes did Mr. O'Grady harvest?
- Fabiola found she has already used 60 pieces, which is 40% of her notebook paper. How many pieces of paper were in the notebook at the start?
- In Irene's neighborhood, she found that 12 houses, which is 16%, were painted brown. How many houses are in Irene's neighborhood?
- Dakota has \$90 saved up. Each week he puts 50% of his allowance in his savings account. How much money did Dakota receive in all that he could save \$90?
- Alejandro found his bag of jelly beans includes 30 red jelly beans, which represent 15% of the entire bag. How many jelly beans are in the whole bag?
- Warren poured out a cylinder of potato chips. He found 6 of the chips, which represents 8%, were broken. How many potato chips were there in the whole cylinder?
- Two of the students, which represents 8% of the students, in Ms. Clark's class wore red shirts today. How many students are in Ms. Clark's class?

6.13 More with Ratios, Unit Rates, and Percents (DOK 3)

Solve each problem. Show your work. (DOK 3)

1. An office supply store made a table of the supplies sold for the month of March. Part of the table is shown below. The “Dollars Sold” is rounded to the nearest ten dollars.

Item:	Paperclips	Pens - Multi-packs	Printer Paper	3-Ring Binders
Units Sold:	2,122	1,417	934	278
Dollars Sold:	\$2,100	\$4,220	\$3,260	\$1,390

Part 1: What is the ratio of the dollars sold of paperclips to the dollars sold of multi-packs of pens?

Part 2: What is the unit rate of printer paper?

Part 3: Which item sold about 13% of the total sales of the four items shown in the table?

2. A review of the population of sixth graders at Addmont Elementary is shown in the table below.

6th Grade:				
Class:	Mr. Clark	Mrs. Stein	Ms. Warrick	Mrs. Taylor
Number of Boys:	13	12	12	11
Number of Girls:	11	14	12	14

Part 1: Which class has a ratio of 1:1 of boys and girls?

Part 2: Which class is made up of 44% boys?

Part 3: What is the ratio of girls to boys for all four classes combined?

3. The Stanley family went on a car trip visiting science and art museums in four cities. The number of miles they drove between cities is shown in the table below.

From Home to City A	From City A to City B	From City B to City C	From City C to City D	From City D to Home
330 miles	115 miles	270 miles	110 miles	255 miles

Part 1: What is the ratio of the number of miles From Home - City A and from City C - City D?

Part 2: What is the percentage of total miles that were driven from City B - City C?

Part 3: If Mr. Stanley gets an average of 24 miles per gallon, how many gallons did he use for the whole trip?

Chapter 6 Review

Write the ratios requested in the following word problems. Write the ratios as fractions in simplest form. (DOK 2)

- Jerry's shirt is made of 60% cotton and 40% polyester. What is the ratio of polyester to cotton?
- A basket of fruit containing 30 pieces of fruit has 20 apples and 10 bananas. What is the ratio of bananas to apples?
- A recipe for chicken noodle casserole takes 2 pounds of chicken and 1 pound of noodles. What is the ratio of noodles to chicken?
- A pet store has 30 hamsters and 50 birds. What is the ratio of hamsters to birds?

Use the chart below to solve the ratio problems that follow. (DOK 2)

Favorite Ice Cream					
	Chocolate	Vanilla	Strawberry	Mint Chip	Choc Swirl
Boys	27	6	7	13	10
Girls	14	8	11	27	18

- What is the ratio of the number of girls who favor chocolate ice cream to the number of boys who favor chocolate ice cream?
- What is the ratio of the number of boys who prefer mint chip ice cream to boys who prefer strawberry ice cream?
- What is the ratio of the number of boys who prefer choc swirl ice cream to girls who prefer vanilla ice cream?

Answer the following questions. (DOK 2)

- Manuel drove 180 miles in 3 hours. What was his rate of speed in miles per hour?
- Melissa can walk 1 mile in 22 minutes. If she keeps the same rate of speed, how far can she walk in 55 minutes?
- Gloria can knit one afghan square in 50 minutes. If she knits continuously at the same rate of speed, how many squares can she make in 4 hours and 10 minutes?

Replace the x , y , and z in the tables of equivalent ratios with the correct number. Do not simplify the answers. (DOK 2)

11.

$1 : 7$
$10 : x$
$\frac{y}{21}$
$\frac{5}{z}$

12.

$2 : 11$
$6 : x$
$\frac{y}{66}$
$\frac{4}{z}$

13.

$3 : 5$
$60 : x$
$\frac{y}{10}$
$\frac{15}{z}$

1) Write a ratio in each problem in simplest form. 2) Write an equation for each problem. 3) Draw a double number line for each problem. 4) Draw a tape diagram for each problem. (DOK 3)

14. Laura makes muffins using 1 cup of sugar for every 2 cups of flour. Write a ratio showing the amount of sugar to flour.
15. Johan has 4 black cars in his model car collection of 12 cars. Write a ratio showing the number of black cars to total cars in Johan's collection.
22. There are sparrows and cardinals that feed at Mrs. Sims bird feeder. The ratio of sparrows to cardinals is 3:1. There are at least 7, but less than 11 sparrows that eat at Mrs. Sims bird feeder. Put an S in the grid below to show the number of sparrows and a C to show the number of cardinals. There may be extra squares.

Complete the chart. (DOK 2)

	Percent	Fraction	Decimal
16.	10%		
17.			0.4
18.		$\frac{1}{5}$	
19.	75%		

Number of sparrows: _____

Number of cardinals: _____

Find the whole number in each problem. (DOK 2)

20. Bill works in a hardware store. Sixteen hours represent 40% of Bill's work week. How many hours does Bill work in one week?
21. Elena has a doll collection. Three of her dolls, representing 15% of her collection, have red hair. How many dolls are in Elena's total collection?

6.8 Unit Rate workspace

Name: _____

Homeroom: _____

1A.	1B.	2A.	2B.
3A.	3B.	4A.	4B.
5A.	5B.	6A.	6B.
7A.	7B.	8A.	8B.

6.9 More Unit Rates workspace

Name: _____

Homeroom: _____

1.	2.	3.
4.	5.	6.

6.10 Unit Rates with Changing Units workspace

1.	2.	3.
4.	5.	6.

6.12 Finding the Whole in a Percent Problem workspace

Name: _____

Homeroom: _____

1.	2.
3.	4.
5.	6.
7.	8.

