

6TH GRADE MATH

Unit 8

Rates and Percent

Date:

Extra! Extra! Read all about it!

We are going to start Unit 8 (Rates and Percents). Here is a list of IXL topics, for every topic you complete you will earn some extra credit. Here are the possible points you can earn on each topic. The extra credit will be due by _____.

Smart Score on IXL

- 100% - 5 extra points
- 95% - 4 extra points
- 90% - 3 extra points
- 85% - 2 extra points
- 80% - 1 extra point

Unit 8 Topics – You can earn up to 55 extra credit points (There is more on the back)!

You got this 😊

6.RP.A.2 Understand the concept of a unit rate a/b associated with a ratio $a:b$ with $b \neq 0$. Use rate language in the context of a ratio relationship.

1. Unit rates (6-R.8)

6.RP.A.3.b Solve unit rate problems including those involving unit pricing and constant speed.

2. Compare rates: word problems (6-R.)
3. Ratios and rates: word problems (6-R.11)
4. Unit prices (6-V.2)
5. Unit prices with fractions and decimals (6-V.3)

6.RP.A.3.c Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means 30/100 times the quantity); solve problems involving finding the whole, given a part and the percent.

6. Solve percent problems using grid models (6-S.)
7. Percents of numbers and money amounts (6-S.5)
8. Percents of numbers: word problems (6-S.6)
9. Find the total given a part and a percent (6-S.10)
10. Which is the better coupon? (6-V.1)
11. Sale prices (6-V.5)

Rates & Unit Rates

Name: _____

Date: _____

Daily Target: I can find the unit rate of a given ratio or rate.

Rate	Ratio
A rate is a _____ comparing quantities of _____ units. The quantities are arbitrary.	A ratio is a _____ of two items

Rate Examples:

- 1) A 12 ounce strawberry milkshake has 240 calories.
The rate is _____ calories for every _____ ounces.



$$\frac{240 \text{ calories}}{12 \text{ ounces}}$$

- 2) A high-speed bullet train traveled 360 miles in 3 hours.
The rate is _____ miles for every _____ hours of travel.



$$\frac{360 \text{ miles}}{3 \text{ hours}}$$

Unit Rates

A unit rate is a _____ for one unit and has a _____ term of one (1). It often has the word "per" in it. It is basically a ratio that is part-to-_____.

Toby drove 600 miles in 12 hours. Find the unit rate of how far in he traveled in one hour.

Step One:

What is the _____? Write it as a _____.

Step Two:

_____ the top and bottom by the _____ number.

Step Three:

Now that we have a part-to one ratio, we just need to _____.

Step Four:

_____ what the ratio means.

Rates & Unit Rates

Name: _____

Date: _____

Daily Target: I can find the unit rate of a given ratio or rate.

Remember your steps!

- 1) Write your ratio as a fraction
- 2) Divide the top and bottom by the bottom number.
- 3) Label your ratio.
- 4) Interpret what the ratio means.

Practice! Write the unit rates and explain what they mean.

- 1) A 14 ounce strawberry milkshake contains 364 calories. How many calories are in each ounce?

$$\frac{\text{cal.}}{\text{oz.}} = \frac{\text{cal.}}{\text{oz.}}$$

(rate/ratio) *(unit rate)*

- 2) A high-speed bullet train traveled 282 miles in 3 hours. How fast did it travel?

$$\frac{\text{mi.}}{\text{hrs.}} = \frac{\text{mi.}}{\text{hrs.}}$$

(rate/ratio) *(unit rate)*

- 3) Find parts manufactured per hour if 856 parts are made in 4 hours

$$\frac{\text{_____}}{\text{_____}} = \frac{\text{_____}}{\text{_____}}$$

(rate/ratio) *(unit rate)*

- 4) A 6 ounce serving of salmon provides 27 grams of protein. How many grams are in one ounce?

$$\frac{\text{_____}}{\text{_____}} = \frac{\text{_____}}{\text{_____}}$$

(rate/ratio) *(unit rate)*

- 5) Hannah completed 40 problems in 32 minutes.

Unit Price	Name: _____	Date: _____
Daily Target: I can find the unit rate of a given ratio or rate.		

Unit Price
A unit price is a _____ per unit or _____ much one of something would cost.

Stacy purchased 24 lemons for making lemonade. The cost of the lemons was \$6.00. What was the unit rate?

Step One: What is the _____? Write it as a fraction	
Step Two: Divide the _____ and bottom number by the _____ number.	
Step Three: _____ your ratio.	
Step Four: Interpret what your ratio _____.	

Practice! (Hint: Whenever the prices of two or more items are compared, the item with the lowest unit rate is the best deal.)

What is the best buy for Fruit Punch?

1) 32 ounces for \$5.00

$$\frac{\$}{\text{OZ.}} = \frac{\$}{\text{OZ.}}$$

2) 16 ounces for \$3.00

$$\underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$





3) 64 ounces for \$8.00

Name _____ Team _____

REAL WORLD UNIT RATES 3

DIRECTIONS Determine which store has the better price for each product.

 <p>Doritos</p> <p>Who has the best price? (ounces per dollar) _____</p>		
		
<p>\$5.90 for 20 ounces</p> <p>equation</p>	<p>\$3.25 for 17 ounces</p> <p>equation</p>	<p>\$2.99 for 15 ounces</p> <p>equation</p>
<p>Ounces per dollar</p>	<p>Ounces per dollar</p>	<p>Ounces per dollar</p>

 <p>St. Ives Body wash</p> <p>Who has the best price? (ounces per dollar) _____</p>		
		
<p>\$3.98 for 19 ounces</p> <p>equation</p>	<p>\$7.21 for 30 ounces</p> <p>equation</p>	<p>\$7.62 for 34 ounces</p> <p>equation</p>
<p>Ounces per dollar</p>	<p>Ounces per dollar</p>	<p>Ounces per dollar</p>

Comparing Unit Rates

Name _____ Date _____ Period _____

Find the unit rate and which product is the better deal?

Example 1: AT&T charges \$76.00 for 500 minutes or Sprint charges \$54.00 for 450 minutes

The Better Deals is _____

Example 2: 1.5 pounds of Fiji apples for \$29.85 or 1.2 pounds of Granny Smith apples for \$20.28

The Better Deals is _____

Example 3: The Shell Station has 21 gallons of gas for \$70 or Wawa has 15 gallons for \$50.00

The Better Deals is _____

Example 4: A Hummer that gets 300 miles on 20 gallons of gas or a Camry that gets 495 miles on 15 gallons of gas.

The Better Deals is _____

Percent and Decimals

Name: _____

Date: _____

Daily Target: I can find the unit rate of a given ratio or rate.

To Make a Fraction into a Decimal:

→ Every _____ can be written as a decimal and a _____. To make a fraction into a decimal, we need to _____.

$$4 \overline{) 1}$$

Example:

$$\frac{1}{4} = 1 \div 4 = 0.25$$

To Make A Percent into a Fraction:

→ Every decimal can be made into a _____ by placing it over 100. You can _____ your fraction by finding a _____ number.

Example:

$$15\% = \frac{15}{100} \div \frac{5}{5} = \frac{3}{20}$$

Practice!

27% = —

25% = —

To Make a Decimal into a Percentage:

→ To make a decimal into a _____, simply multiply the _____ by 100. This is what _____ percentage is out of.

Example:

$$0.35 \times 100 = 35\%$$

Practice!

0.45 =

0.56 =

→ To make a _____ into a decimal, simply _____ by 100.

Example:

$$45\% \div 100 = 0.45$$

Practice!

65% =

84% =

Brad is reading the 4th Harry Potter book. The book has 636 pages. He has read 40% of the book so far. How many pages has he read?

Of = multiplication

Percent and Decimals

Name: _____

Date: _____

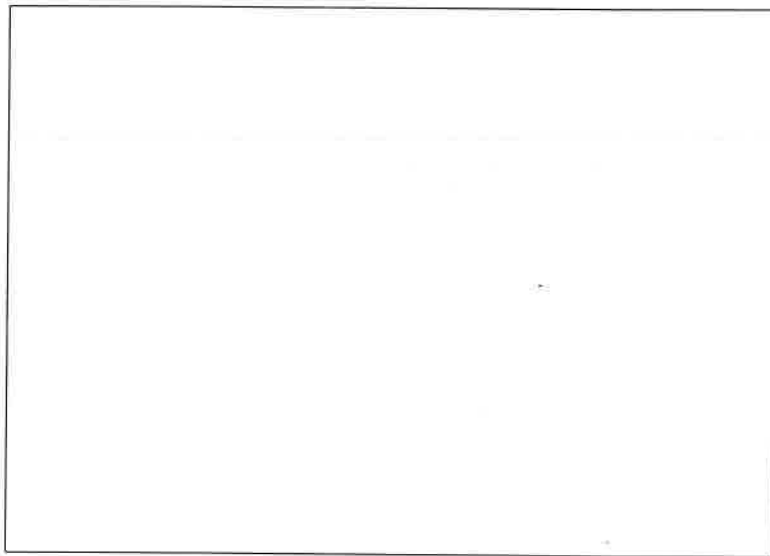
Daily Target: I can find the unit rate of a given ratio or rate.

Ron is reading an old Harry Potter book which has 860 pages. He has read 60% of the book. How many pages has he read?

Step 1:

Step 2:

Step 3:



Practice!!

- 1) Express 5 out of 10 as a percent.
- 2) Write 45% as a fraction.
- 3) 10% of 460 is what number?
- 4) 56 is 50% of what number?
- 5) What is 8 out of 10 as a percent?
- 6) Write 56% as a fraction.
- 7) 50% of 480 is what number?
- 8) 48 is 50% of what number?

WORD PROBLEM PRACTICE!!

Ms. Juengel is reading the "Cat Adventures" book to the new kittens. The book has 250 pages. She has read 70% of the book. How many pages has she read?

Name: _____

1. Sara got 8 out of 10 of the questions correct on her quiz. What grade did she make?	2. 47 is 50% of what number?
3. What is 20% of 400?	4. What is 10% of 200?
5. Write 45% as a decimal and a fraction.	6. Brad is reading the 4 th Harry Potter book. The book has 636 pages. He has read 40% of the book so far. How many pages has he read?

Complete the conversions from fraction to decimal to percent.

Fraction	Decimal	Percent
$\frac{1}{8}$		
	0.35	
		84.5%
	0.325	
$\frac{2}{25}$		

Anna's Dinner

Anna enjoys dinner at a restaurant in Washington, D.C., where the sales tax on meals is 10%. She ordered a steak with a baked potato. On the menu, the steak cost \$12.00 and the baked potato cost \$3.25.

a.) How much did the steak and potato cost altogether?

b.) How much does her meal cost with the sales tax included?

c.) She leaves a 15% tip on the total price of her meal. How much tip did she leave?

d.) Anna's friend says that the tip will be the same amount if it is calculated before the sales tax is added to the total. Find the tip she would leave before the sales tax has been added to it. Do you agree or disagree? Explain your answer.

What's the Plan?

Common Core Standard

6.EE.B.6 Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set.

MP1: Make sense of problems and persevere in solving them.

MP2: Reason abstractly and quantitatively.

MP3: Construct viable arguments and critique the reasoning of others.

MP6: Attend to precision.

MP7: Look for and make use of structure.

The Task

Oakland Cell Phone Company offers the following options:

Number of Minutes	Cost	Overage
400	\$40.00	45¢ per min
800	\$60.00	40¢ per min
Unlimited	\$70.00	

Number of Texts	Cost	Overage
Pay as you go	15¢ per text	
300	\$5.00	10¢ per min
1000	\$10.00	10¢ per min
Unlimited	\$20.00	

Three friends are trying to determine the options for their new cell phone plan.

- Mitchell uses exactly 450 minutes and 200 texts per month.
- Lisa uses exactly 810 minutes and 1,200 texts per month.
- José uses exactly 700 minutes and 350 texts per month.

Based on the information above, choose an appropriate minute and text plan for Mitchell, Lisa, and José. Justify your reasoning.

