

Name: _____
First Last

Period: _____

Objective 10 – Assignment List

Direct Variation: *solve problems involving percents and rates using equations and graphs*

Monday

In Class: *Fraction Graphs*

Watch: *Seeing Fractions in Algebra*

Tuesday

In Class: *Percent Copies*

Watch: *Dealing with Percents Algebraically*

Wednesday

In Class: *Problems with Percents*

At Home

Thursday

In Class: *Mixing Measures*

Watch: *Dealing with Rates Algebraically*

Monday

In Class: *Practicing Mixed Measures*

Watch: *Test Review*

Friday In Class: *Unit 3 TEST*

Parent Signature: _____

Fraction Graphs

- Make a list of equivalent fractions for each fraction including the decimal fraction
- Graph each set of equivalent fractions with a different color
- Use a straight edge to connect the points of each set of equivalent fractions
- Label each line with the fraction family it represents and the decimal fraction

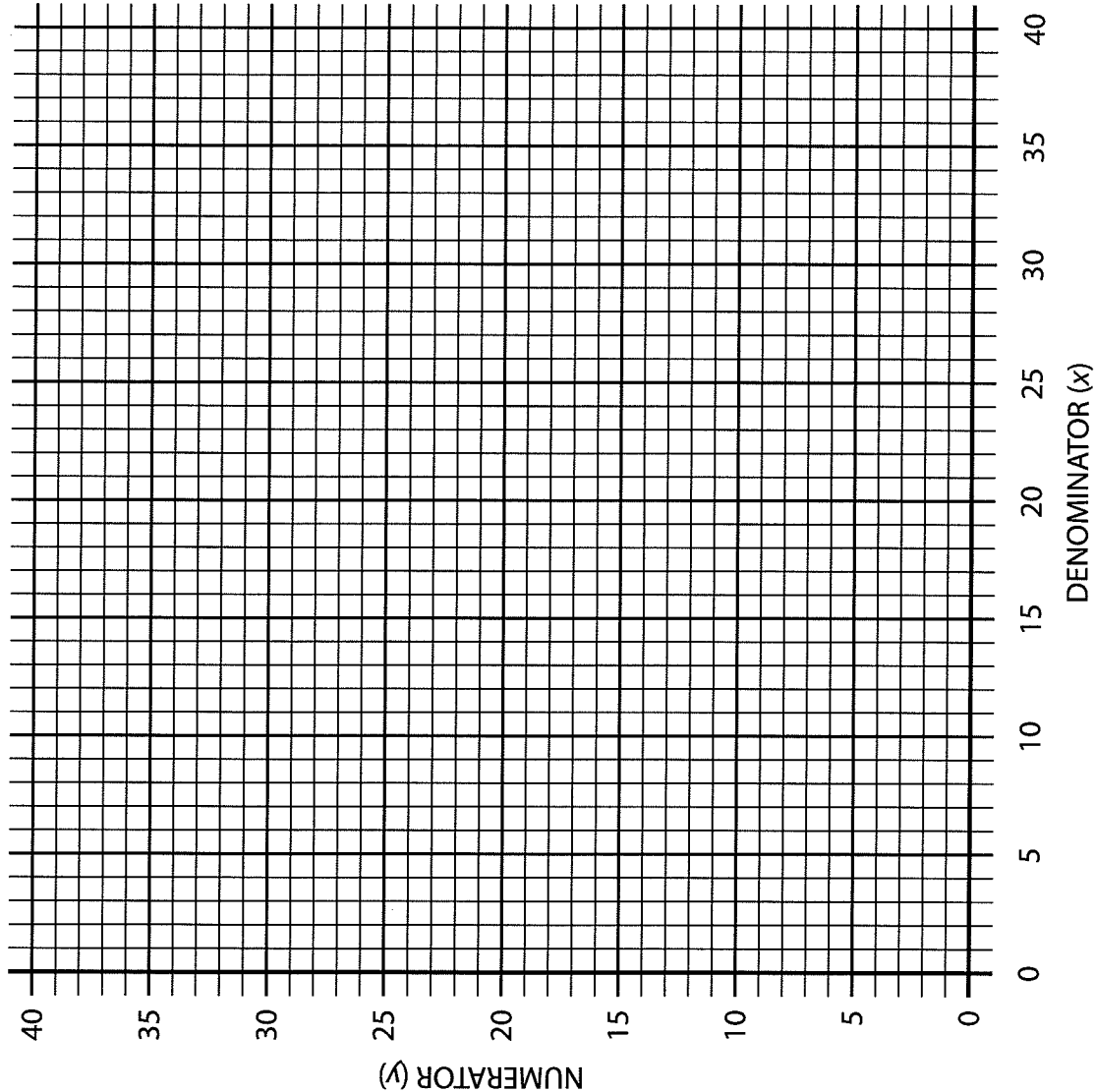
$$\frac{1}{2} = \frac{\quad}{\quad} = \frac{\quad}{\quad} = \frac{\quad}{\quad} = 0.$$

$$\frac{1}{3} = \frac{\quad}{\quad} = \frac{\quad}{\quad} = \frac{\quad}{\quad} = 0.$$

$$\frac{1}{4} = \frac{\quad}{\quad} = \frac{\quad}{\quad} = \frac{\quad}{\quad} = 0.$$

$$\frac{1}{5} = \frac{\quad}{\quad} = \frac{\quad}{\quad} = \frac{\quad}{\quad} = 0.$$

$$\frac{6}{6} = \frac{\quad}{\quad} = \frac{\quad}{\quad} = \frac{\quad}{\quad} =$$



What relationships are there between each graphed line and its set of equivalent fractions?

PERCENT COPIES

COPY A

	Original (x)	Copy (y)	Rate (y/x)
SIDE A			
SIDE B			
SIDE C			
SIDE D			
	Average Rate of Change		

Conversion Equation $y =$

Original (x) to Copy (y)

COPY B

	Original (x)	Copy (y)	Rate (y/x)
SIDE A			
SIDE B			
SIDE C			
SIDE D			
	Average Rate of Change		

Conversion Equation $y =$

Original (x) to Copy (y)

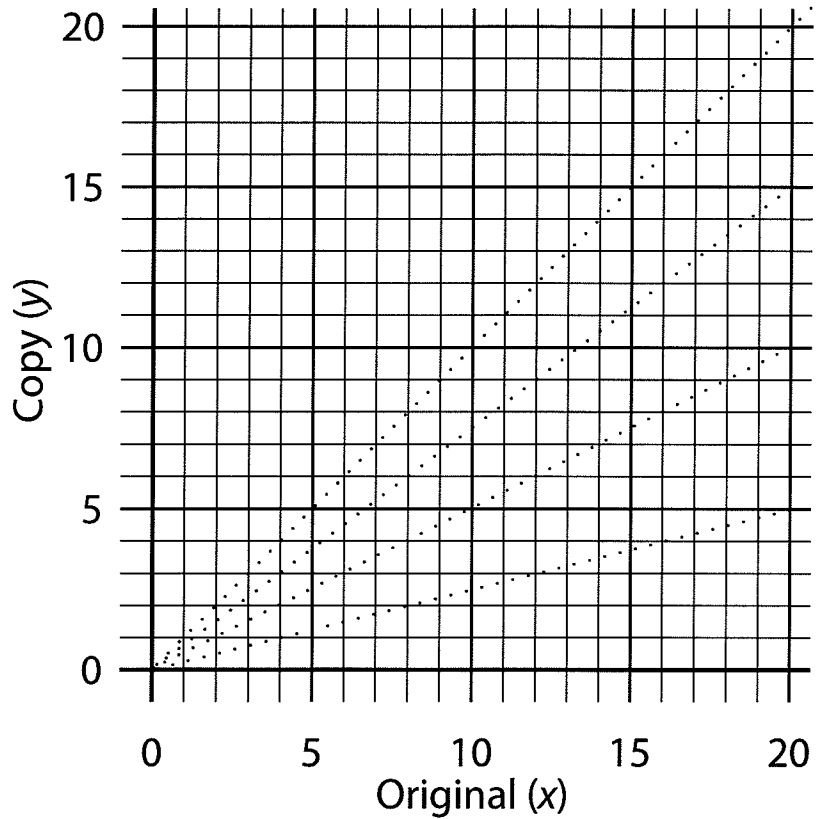
COPY C

	Original (x)	Copy (y)	Rate (y/x)
SIDE A			
SIDE B			
SIDE C			
SIDE D			
	Average Rate of Change		

Conversion Equation $y =$

Original (x) to Copy (y)

1. Measure and record each length to nearest 0.1 cm.
2. Determine the decimal rate of change for each length and calculate the average for each copy.
3. Plot the four points for each copy on the graph below. Use a different colored pencil for each of the three copies.
4. Come up with an equation for each copy that converts the original length x into the changed length (y) .



5. What pattern is there in all the points about a single copy?
6. How are lines of the copies different from each other?
7. How are the equation of the copy and the line of the copy related? How can you identify which line goes with which equation?

PROBLEMS with PERCENT

Substitute what you know into the equation $y = ax$ and solve for the unknown

1. 85% right on a 30 question test is how much?
2. What percent is 28 right out of 35 problems?
3. If 12 of 28 students are girls what percent are girls?
4. 18 problems wrong is 30% off on a test. How many problems on the test?
5. 54 students is 15% of the school. How many students in the school?
6. What percent do you get for 19 right on a 24 point project?
7. 15% off of \$40. What is the sale price in dollars?
8. \$27 sale price on a \$42 item is what percent discount?
9. \$25 sale price. 30% discount. Original price.

Charging sales tax makes two problems. First figure out the sales price. Then calculate the percent tax on the sale price.

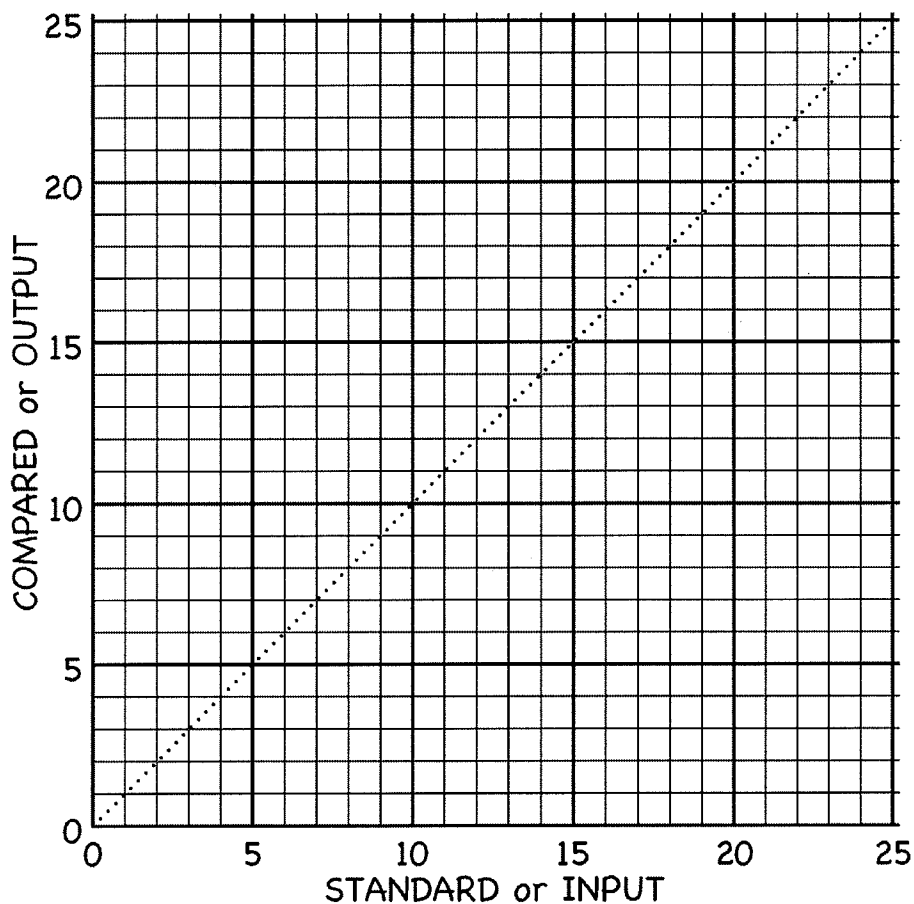
10. \$19.95 item, discounted 20%, with 8% tax. Final cost.
11. A \$35 item with 45% discount has how much tax at 8.5%?
12. How much does tax cost if a 7.5% sales tax is added to a \$25 item reduced 20%

Mixing Measures

- Complete both charts using a ruler. Record inches to nearest half (0.5) inch and centimeter.
- Graph the data in different colors on the graph.

Input: In. (x)	Output: CM (y)	Rate: $\frac{\text{Output}}{\text{Input}}$
1		
3		
5		
7		
9		

Input: CM (x)	Output: In. (y)	Rate: $\frac{\text{Output}}{\text{Input}}$
5		
10		
15		
20		
25		



Equation turning Inches into Centimeters

Equation turning Centimeters into Inches

1. What do you notice about the rates in each chart?
2. How can you use these rates to convert the input into the output?
3. Make two equations, one outputs centimeters when inches are inputted, the other outputs inches when feet are inputted.
4. Write the rate in each chart as a fraction. What do you notice about the fractions?
5. What patterns do you see in the graph? Compare and contrast the two sets of data.
6. How does what you noticed in question four and five relate to each other and what does it have to do with inches and centimeters.

Practicing Mixed Measurements

<u>Kilometers/Mile</u>	<u>Centimeters/Inch</u>	<u>Pounds/Kilogram</u>	<u>Liters/Gallon</u>
$k = 1.61m$	$c = 2.54i$	$p = 2.2k$	$l = 3.78g$

Use the conversion rate equations above to make the conversions below.

- If it is 1,000 miles from Los Angeles to Denver, how many kilometers are the cities apart?
- The electronic scale recorded Sean's weight as 50 kg. How much does Sean weigh in pounds?
- How many centimeters long is a 36 inch yardstick?
- A liter of gas sells for \$0.75 in Canada. How much does a gallon of gas cost in Canada?
- How many gallons of soda do you get when you buy five 2-liter bottles?
- The heaviest person in medical history was Jon Brower Minnoch. He was 185 centimeters tall and weighed 442 kilograms.
 - How many inches tall was Jon?
 - How many pounds did Jon weigh?
- The tallest woman in the world with a height of 91 inches is Sandy Allen from Indiana. At the age of 10 she stood 190.5 centimeters tall.
 - How many centimeters tall is the tallest woman?
 - When Sandy was ten, how many inches tall was she?
- A team of 20 Atlas Power Gym strongmen pulled a semi-trailer truck weighing 36,620 pounds a record 5.52 kilometers at Kenosha Municipal Airport, Wisconsin, USA, on September 30, 2001.
 - The truck weight how many kilograms?
 - How many miles did they pull the truck?
- The largest aluminum can, which had a capacity of 3,608 liters – room for 8,200 times more drink than the original – was displayed on St Patrick's Day, March 16, 1999, in Sydney, Australia. It weighed 300 kilograms.
 - How many gallons of drink could be stored in the can?
 - How many pounds did the can weigh?