

Name: _____ Community _____

7th Math Mastery Checklist quarter 2 by topic

Cycle 2:

Proportional Relationships		
Mastery Date	Quick-Check %	
		Identify Ratios
		Determine the Unit Rate
		Determine Proportional Relationships
		Solving Proportions
		Real World Applications with Proportions
		Similar Figures and Indirect Measurement
		Similar Figures and Scale

Percents		
Mastery Date	Quick-Check %	
		Solving for Percent of a Number
		Simple Interest
		Discount, Tax and Tip
		Percent Error
		Percent of Change (Increase or Decrease)

Algebraic Reasoning Part I (Equations)		
Mastery Date	Quick-Check %	
		Evaluating Expressions
		Solving One-Step Equations
		Solving Two-Step Equations
		Solving Multi-Step Equations
		Translate Expressions and Equations
		Writing and Expression and Write Equations

Topics I need to practice:

Example works:

By the end of this lesson you will be able to _____.

Example 1 - If Candidate A received 6 votes and Candidate B received 8 votes. How many different ratios can be used to describe the results?

What is a *ratio*? _____

What are the three ways to represent a ratio? 1) _____

2) _____

3) _____

What two quantities are being compared in the problem?

1) _____ and 2) _____

Write two Part-to-Part Ratios

Write two Part to Whole Ratios

1) _____ 1) _____

2) _____ 2) _____

Write each of the part-to-part ratios using the three methods.

1) _____

2) _____

Write each of the part-to-whole ratios using the three methods.

1) _____

2) _____

Finish these two sentences...

1) Ratios should be _____.

2) Ratios should be left as _____.

Movie Genre	Number of Movies
Action/Adventure	
Comedy	
Drama/Romance	
Animation	
Science Fiction/Fantasy	
Suspense	

Example 2 - Fill in the table with that categorizes the first 50 movies that came out in the first few months of 2013. Use ratios to describe this information.

Identify three part-to-part ratios and write them using each of the three forms.

1)

2)

3)

Identify three part-to-whole ratios and write them using each of the three forms.

1)

2)

3)

Example 3 - A Tennis Camp has an enrollment of _____ athletes. _____ of those athletes are girls. What is the ratio of girls to boys?

What ratio does the information in the problem allow you to create? _____

What ratio does the question ask for? _____

How can you determine the number of boys at this camp given the information from the problem?

What is the ratio of girls to boys at the camp written in three different forms?

Your Turn to Practice

Fill in the problems with the correct values or words from the video.

- 1) In a small bag of M&Ms there are ____ brown, ____ red, ____ blue, and ____ green M&Ms. What is the ratio of _____ to _____ M&Ms?

- 2) The ratio of girls to all campers at a sports camp was ____ to _____. What was the ratio of _____ to _____ at this camp?

- 3) Using the table, write each ratio as a fraction.
 - a) Orange to Yellow
 - b) Green to Red
 - c) Blue to All Students
 - d) Purple or Blue to Yellow

Favorite Colors of Students	
Colors	Number of Students
Orange	
Purple	
Yellow	
Blue	
Green	
Red	

By the end of this lesson you will be able to _____.

Example 1 - You have read 10 pages in 6 minutes. What is your unit rate per minute?

What is a *rate*? _____

What is a *unit rate*? _____

What two quantities are being compared in this problem? Write the ratio as a fraction.

Fractions represent which of the four math operations? _____

[Show your work for solving for the unit rate here]

What can you do?

Write your answer as a complete sentence.

Example 2 - The Morning Times is looking to hire a new receptionist. An important skill required for the job is to have a fast typing speed. Fill in the table that lists the information for the three potential candidates for the job. Which of the three has the fastest rate?

[Show your work for solving for the unit rate for each candidate]

Julie -

Shelly -

Marcel -

Candidate	Number of Words	Time (Min)
Julie		
Shelly		
Marcel		

Write your answer as a complete sentence.

Example 3 - You spent \$_____ on your last fill up at the gas station. If you put in _____ gallons, what is the unit price?

What is a unit price? _____

What two quantities are being compared in this problem? Write the ratio as a fraction.

[Show your work for solving for the unit rate here]

Write your answer as a complete sentence.

Example 4 - You are browsing through the Sunday ads looking for grocery deals. One store is offering frozen meals 3 for \$_____ while another store is offering 2 for \$_____. Which store is offering the best unit price?

What two quantities are being compared in this problem?

Write the ratio for Store A as a fraction.
[Show your work for solving for the unit rate here]

Write the ratio for Store B as a fraction.
[Show your work for solving for the unit rate here]

Which store has the better buy? Write your answer as a complete sentence.

By the end of this lesson you will be able to _____.

Example 1 - Classroom A has a 4 to 3 ratio of girls to boys. Classroom B has a ratio of 12 to 10. Is the situation between girls to boys in these two classrooms proportional?

What does it mean by *proportional*? _____

What two quantities are being compared in the problem?

1) Write the ratio for Classroom A Write the ratio for Classroom B

Are the two classrooms proportional? Provide an explanation for your answer.

2) How did you use *cross-products* to help you solve this problem?

[Show your work for solving with cross products here]

3) What equivalent ratios did you use to help you solve this problem?

[Show your work for solving with equivalent ratios here]

What can you do?

1)

2)

3)

Example 2 - Plane A traveled _____ miles in _____ hours. Plane B traveled _____ miles in _____ hours. Is the rate between the two planes proportional?

What two quantities are being compared in the problem?

Write the ratio for Plane A Write the ratio for Plane B

[Show your work for solving with equivalent ratios here]

Is the rate between the two planes proportional? Provide an explanation for your answer.

Example 3 - Cineplex A is offering a 5-movie pass for \$_____. Cineplex B is offering an 8-movie pass for \$_____. Is the rate between the two Cineplex theatres proportional?

What two quantities are being compared in the problem?

Write the ratio for Theatre A Write the ratio for Theatre B
[Show your work for solving with cross products here]

Is the rate between the two theatres proportional? Provide an explanation for your answer.

Your Turn to Practice

Fill in the missing values given in the video. Write your answers in complete sentences.

- 1) Mike's bag of M&Ms had a ratio of _____ red to _____ green M&Ms. Julie's bag had a ratio of _____ red to _____ green M&Ms. Simplify the ratios in order to determine if Mike and Julie have bags with proportional amounts of red and green M&Ms.
- 2) Andrew made _____ baskets in _____ minutes in Tuesday's practice. On Wednesday he made _____ baskets in _____ minutes. Use cross products to determine if Andrew able to keep his rate the same.
- 3) A pumpkin spice cookie recipe for a dozen cookies calls for _____ cups of flour. Gretel is making _____ cookies for her classmates. She decides to use _____ cups of flour. Use equivalent ratios to determine if she is keeping the same proportion of number of cookies to cups of flour.

By the end of this lesson you will be able to _____.

Example 1 - Solve for the missing value in the proportion

What is a *proportion*? _____

1) Show your work for solving the proportion using a common factor.

$$\frac{6}{7} = \frac{x}{21}$$

What can you do?

2) How can you use *cross-products* to help solve for the missing value?

$$\frac{8}{6} = \frac{15}{x}$$

Example 2 - A toy company performs a safety check before shipping out their toys. The check found _____ defective toys for every _____ inspected. If the company inspected _____ toys, how many of them were defective?

What two units are being compared in the problem?

How can you set up a proportion to show the ratios are equal?
[Show your work for solving the proportion using a common factor]

How many toys were defective? Write your answer in a complete sentence.

Example 3 - A movie critic stood outside from a new release asking the theatre patrons what they thought about the movie. _____ out of _____ people enjoyed the movie. If he found that _____ people enjoyed the movie, how many people did he survey?

What two units are being compared in the problem?

How can you set up a proportion to show the ratios are equal?
[Show your work for solving the proportion using a common factor]

How many people were surveyed? Write your answer in a complete sentence.

Your Turn to Practice

Copy each proportion from the video and solve by using the common factor.

1)

2)

Copy the question for each problem from the video. Determine the solution to each question by setting up a proportion and using cross products to create and solve an equation. Provide your answer in a complete sentence.

3) James is driving across the country for a job interview. He figures he can drive 400 miles a day. _____

4) Melissa's History exam had 75 questions on it. She was only able to answer 66 questions in the allotted time. Assuming that she answered them all correctly, what is the highest grade possible she could get? _____

By the end of this lesson you will be able to _____.

Example 1 – Scale Maps and Drawings

[Fill in the missing information]

The distance between Raleigh, NC and Asheville, NC on the map is _____. The scale for the map is _____. How many miles is it between these two cities?

What two units are being compared in the problem?

What proportion can be used to solve this problem?

[Show your work using cross products to solve for the missing value]

What is the distance between the cities? Write your answer in a complete sentence.

Example 2 – Indirect Measurement

[Fill in the missing information]

Susie is standing next to a tree that has a shadow measuring _____ long. Susie's shadow is _____ long and she knows she is 5 feet tall. How tall is the tree?

What two units are being compared in the problem?

What proportion can be used to solve this problem?

[Show your work using cross products to solve for the missing value]

What is the height of the tree? Write your answer in a complete sentence.

Example 3 - Converting Customary Measures

[Fill in the missing information]

Francis claims he weighs _____. Greg says he weighs _____. Which boy weighs more?

What two units are being compared in the problem?

What two proportions can be used to solve this problem?

[Show your work using cross products to solve for the missing value in both proportions]

What is the weight of both boys in ounces and in pounds? Write your answers in complete sentences.

Your Turn to Practice

Fill in the missing parts of each question from the video. Use a proportion to solve each problem. Write your answers in complete sentences.

1) Two cities on a map are 5 inches apart. The scale for the map says _____. How many miles apart are the two cities?

2) An 18-foot tree casts a 32-foot shadow. If Leslie is standing next to the tree and she is _____, How long will her shadow be? Round your answer to the nearest tenth.

3) The Guinness Record Books says the longest phone call is _____. How many hours is this record?

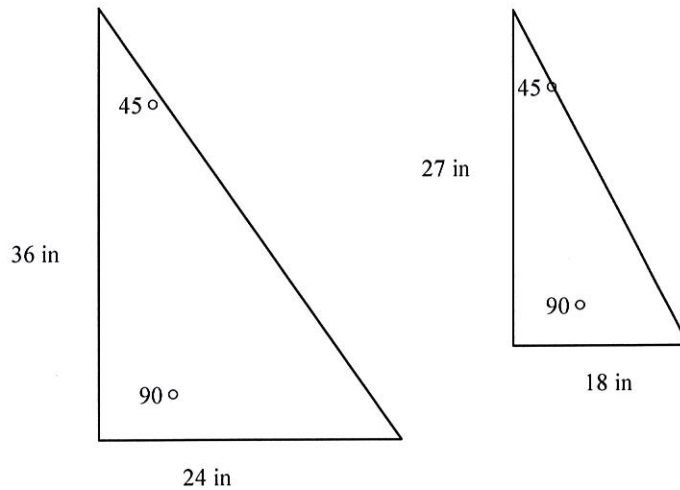
Name: _____

Similar Figures and Indirect Measurement

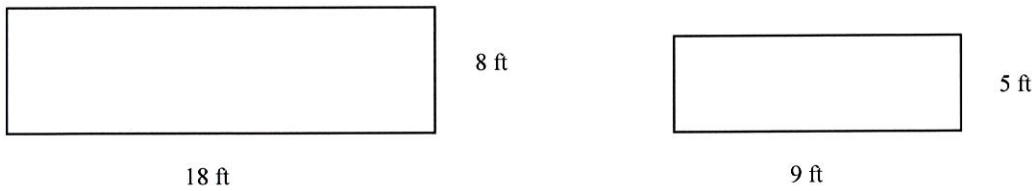
In order for figures to be considered similar, the following three things must be true-

- 1.
- 2.
- 3.

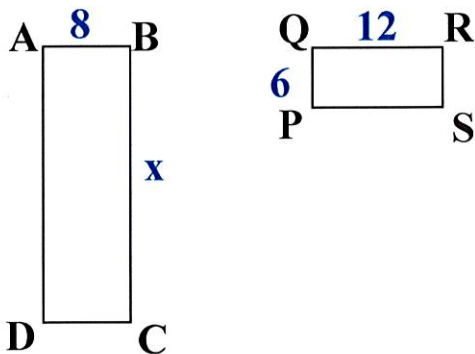
Are these two figures similar? If they are, explain why. If not, explain why not.



Are the following figures similar?

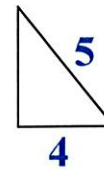
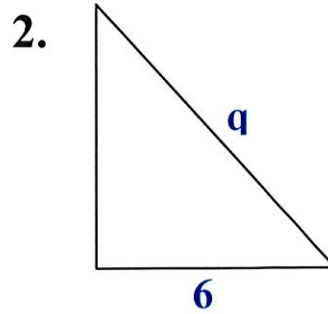
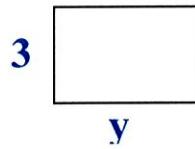
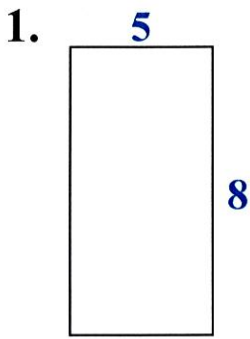


What happens if we know that rectangles ABCD and PQRS are similar? How could we find x?



The following figures are similar. Solve for the designated side.

Name: _____



Real Life Application of Similar Figures

Use pictures and proportional reasoning to solve the following problems.

1. A tree stands 12 feet tall and casts a shadow 8 feet long. At the same time, a person casts a shadow that is 3 feet long. To the nearest tenth of a foot, how tall is the person?

Draw a picture (stick figures are acceptable!):

Set up the problem and solve:

Indirect measurement is:

2. Laura is 5.5 feet tall and casts a shadow that is 3.2 feet long. She is standing next to a flag pole that is 23 feet tall. To the nearest tenth of a foot, how long is the flag pole's shadow?
3. A Civil War monument in Charlestown, Massachusetts is 221 feet tall. It casts a shadow 189 feet long at the same time a nearby tree casts a shadow 29 feet long. To the nearest tenth of a foot, how tall is the tree?

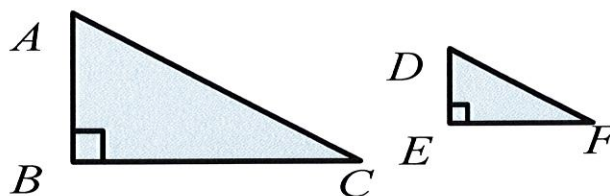
By the end of this lesson you will be able to _____

What does it mean to be similar?

In mathematics, two figures are said to be similar...

- 1) _____
- 2) _____

Example 1: $\triangle ABC$ and $\triangle DEF$ are similar, identify the corresponding sides giving supporting reasons.



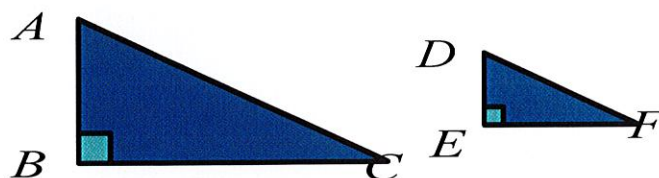
_____ and _____

_____ and _____

_____ and _____

Example 2: Are the following triangles similar?

[Write in the lengths for the sides of the triangle given in the video.]



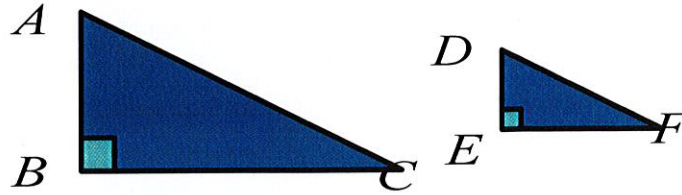
What can you do?

Step 1: _____

Step 2: _____

Example 3: What is the scale factor between $\triangle ABC$ and $\triangle DEF$?

[Write in the lengths for the sides of the triangle given in the video.]



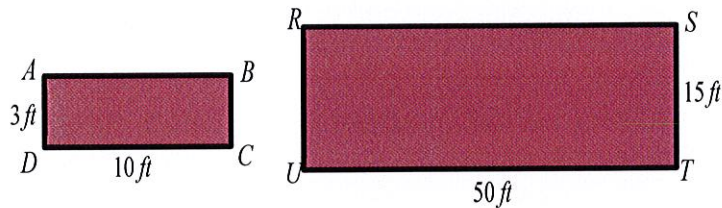
Identify two pairs of corresponding sides and write as a ratio.

The ratio of corresponding sides simplify to _____.

The scale factor from the larger rectangle to the smaller rectangle is the ratio _____.

$\triangle ABC$ was _____ by _____ or _____ to get the lengths of $\triangle DEF$.

Example 4: Rectangle ABCD and RSTU are similar. What is the scale factor?



Write the lengths of corresponding sides as a simplified ratio.

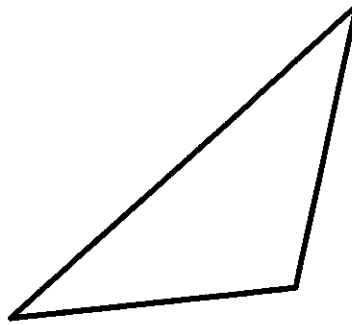
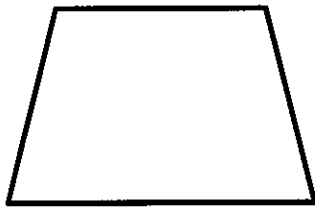
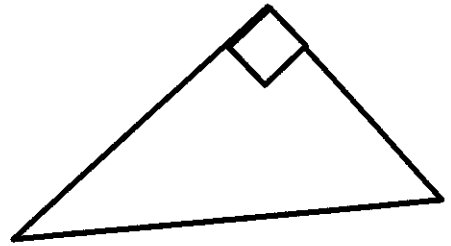
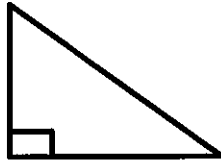
The ratio between corresponding sides simplified to _____. The scale factor from the smaller rectangle to the larger rectangles was _____.

Rectangle ABCD was _____ by _____ to get the lengths of Rectangle RSTU.

Your Turn to Practice.

Determine whether each set of figures are similar. If they are, determine the scale factor.

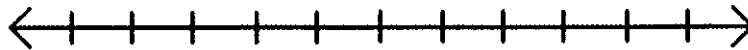
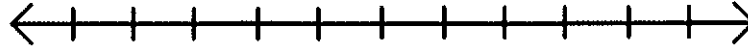
[Write in the lengths for the sides of each figure given in the video.]



By the end of this lesson you will be able to _____.

Example 1 - Use a double number line to complete the statement...

_____ % of _____ is _____.



Example 2 - Use a double number line to complete the statement...

_____ is _____ % of _____.



Example 3 - Use a proportion to complete the statement...

90 is _____ % of _____.

_____ = _____

What to Do...

- ✓ Using the values write as the ratio _____.
- ✓ Use a variable to write the second ratio showing a missing part _____.
- ✓ Use _____ to set up an _____.
- ✓ Solve using _____.

Example 4 - Use a proportion to complete the statement...

_____ % of _____ is _____.

_____ = _____

What to Do...

- ✓ Using the values write as the ratio

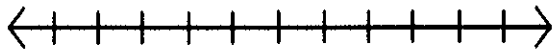
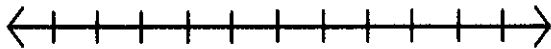
- ✓ Use a variable to write the second ratio showing a missing part _____

- ✓ Use _____ to set up an _____.
- ✓ Solve using _____.

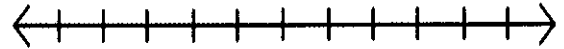
Your Turn to Practice!

Use the double number lines to solve.

3) 70% of _____ is _____.



2) 48 is _____ % of _____.



Use a proportion to solve.

3) 15% of _____ is _____.

4) 40 is _____ % of _____.

By the end of this lesson you will be able to _____.

What is interest? _____.

- 1) If you are the owner of a savings account how do you acquire interest?

- 2) If you need to borrow money from a bank, why do you get charged interest?

Simple Interest Formula

_____ = _____ x _____ x _____

What is *principal*? _____

What is the *rate*? _____

How does *time* factor into the problem? _____

Example 1 - You have deposited \$1200 into three investments at three different banks. How much money will each investment earn at the end of each term?

Fill in the table with the information from the video.

Bank	Rate	Time

1) _____

2) _____

3) _____

Example 2 - Use the formula to determine the missing value.

Problem #1 Interest = _____
Principal = _____
Rate = _____
Time = _____

Problem #2 Interest = _____
Principal = _____
Rate = _____
Time = _____

Example 3 - Sammy wants to deposit _____ into a savings account that is paying _____ interest. How long will he need to keep the money in the bank to have at least _____.

Formula:

Interest = _____
Interest = _____
Principal = _____
Rate = _____
Time = _____

Your Turn to Practice: [fill in the blanks with the information from the video]

- 1) You have earned _____ in interest on a _____ investment over the past _____ years. What rate has the bank offered you?
- 2) You have borrowed _____ to buy your first car. The bank is offering an interest rate of _____ for _____ years. How much interest will the bank earn off your loan?
- 3) You have earned _____ in interest over the past _____ years on your savings account that pays _____. How much money did the account start with?
- 4) You deposited _____ in a savings account that paid _____ interest. You have earned _____ in interest. How long have you had the account?

In 2011, Americans spent _____ shopping!

By the end of this lesson you will be able to _____,
_____, and _____.

Example 1 - Computing the Discount

You need to buy a new printer to print off your research paper for school. You decide on the printer in the ad. [Fill in the information from the video.]

How much money will you save? _____

How much money will the printer cost? _____

"of" is a key word for _____

_____ % times the _____

Change the percent to a decimal by _____

Multiply the decimal by _____.

To determine the cost of the printer what will you need to do?



Example 2 - Computing the Sale Price

You just bought your first iPhone and now want a charger dock for it. You decide to use the ad. [Fill in the information from the video.]

How much money will the dock cost? _____

How much money will you save? _____

"of" is a key word for _____

_____ % times the _____

Change the percent to a decimal by _____

Multiply the decimal by _____.

To determine the how much money you will save what will you need to do?



Example 3 - Computing Sales Tax

The receipt in the video displays the following items that you bought at the Big Box Store. The total came to \$_____ before sales tax.

What does your total bill come to?

How much money do you owe in sales tax?

Problem to solve:

106.75% "of" the bill \$_____.

Where did the 100% come from? _____

Where did the 6.75% come from? _____

Change the percent to a _____.

Multiply by _____.

How can you determine how much you own in sales tax?

Example 4 - Computing Tip

The video shows a receipt for your latest visit to a restaurant where the total bill came to \$_____. You choose to leave a _____% tip.

How much money will your meal cost with tip?

How much money are you leaving for the tip?

Problem to solve:

115% "of" the bill \$_____.

Where did the 100% come from? _____

Where did the 15% come from? _____

Change the percent to a _____.

Multiply by _____.

How can you determine how much you are giving as the tip?

Your Turn to Practice!

1) Original Price \$_____, Save _____%.
What is the sale price?

2) Original Price \$_____, Save _____%.
What is the discount?

3) Shopping subtotal \$_____, _____%
sales tax. What will the total bill come to?
How much are you paying in sales tax?

4) Restaurant Bill \$ _____, Tip
_____. What will the total bill come
to? What amount are you leaving for the
tip?

By the end of this lesson you will be able to _____,

Example 1 - Calculating Percent Error

The weatherman said we would get _____ inches of snow, but we only got _____ inches. What was his percentage error?

What is a percentage error? _____.

What you can do...

Calculate the error by _____

Divide the error by _____

Covert to a percentage by _____

Example 2 - Calculating the Percentage Error

The boiling point of ethyl alcohol should be _____, but Joshua found it to be _____ ! What was Joshua's percentage error?

What you can do...

Calculate the error by _____

Take the absolute value of _____

Divide the error by _____

Covert to a percentage by _____

Who was more accurate the weatherman or Joshua?

Having a _____ percent error is going to be more desirable

Example 3 - Calculating the Percentage Error for π (pi)

What is pi? _____

Most often we use the number _____ for pi in calculations with circles.

But pi is an _____, a decimal number that keeps going without repeating patterns.

$$\pi = \underline{\hspace{10em}} \dots$$
$$= \underline{\hspace{10em}}$$

When we use the number 3.14 for pi, what is the percentage error? _____

When we use the fraction $\frac{22}{7}$ for pi, what is the percentage error? _____

Which estimated number is closest to the true value of pi? _____ Why? _____

Your Turn to Practice!

- 1) You thought you would get an _____% on your math test. You got an _____%. What was your percentage error?
- 2) The band expected 800 fans to show up, but 950 fans showed up instead. What was the band's percentage error?
- 3) The body shop estimated the repairs on your car would be \$_____. You had to pay \$_____ instead. What was the shop's percentage error?
- 4) You expected to run one lap in _____ seconds. It took you _____, what was your percentage error?

By the end of this lesson you will be able to _____,

Mark Up

Many stores buy their merchandise at _____ and then resell it to the public at a _____ price. They do this in order to make _____.

Example 1 - Percent of Increase

Caps & Hats bought a shipment of baseball caps a wholesale cost of \$_____ per hat. They are selling them in their store for \$_____ per hat. What is the percent of increase?



What is the profit made on each hat sold? _____

What you can do...	
1)	_____
2)	_____
3)	_____
4)	_____

Answer in a complete sentence: _____

Depreciation

After you buy a car the value _____ or _____ in value for each year of use. If you want to sell your car, you often can't sell it for _____ or _____ the price, therefore creating a _____.

Example 2 - Percent of Decrease



You bought your car for \$_____ in 2004. Today it is only worth \$_____

What is the percent of decrease?

What you can do...

1) _____

2) _____

3) _____

4) _____

What is the loss of value on the car? _____

Answer in a complete sentence: _____

Profit and Loss

Stores buy product to sell at a _____ price in order to make _____.
But sometimes they can't sell their product so they need to _____ to a
better sale price. If they mark the item down correctly they will _____ make a profit off
each item sold, but if they mark it down too much they may _____ money on each item
sold.

Example 3 - Profit or Loss?

A store sells step-ladders at a retail price that was marked up _____. But a month later, they
still have many ladders left. They decide to cut the price of the ladders _____. Will the
store still be able to make a profit off their ladders?



What you can do...

- 1) _____
- 2) _____
- 3) _____
- 4) _____
- 5) _____
- 6) _____

The store is able to keep _____% of the
_____% mark up. But is it enough?

Answer in a complete sentence: _____

Example 4 - Profit or Loss?

A jeweler buys gold necklaces and sells them at a retail price with a _____% mark up. For a Valentine's Day Sale the jeweler decided to mark them down _____%. Will the jeweler still be able to make a profit on the necklaces?



What you can do...

- 1) _____
- 2) _____
- 3) _____
- 4) _____
- 5) _____
- 6) _____

The store is able to keep _____% of the _____% mark up. But is it enough?

Answer in a complete sentence: _____

Your Turn to Practice. [Fill in the information for each problem from the video.]

Find the percent of change for each problem.

1) Original Price: \$_____

Mark Up Price: \$_____

2) Original Price: \$_____

Mark Up Price: \$_____

3) Mrs. Carr started her school year with 25 students. By the end of the year, her class has grown to 28 students. What was the percent of increase?

4) The regular price for a sweater is \$40. But you decide to wait for the sale and now it costs \$18. What is the percent of the discount?

5) A store sells model trains with a 70% mark up. For a weekend sale they mark down the price 25%. What percent is the profit or loss for the store?

Evaluating Expressions Notes

Name _____

Steps:

- 1) Write your expression.
- 2) Substitute in your value(s).
- 3) Solve using your order of operations

Don't forget that your integer rules still apply!

Examples: Evaluate $k + (-9)$ for each value of k .

1) $k = 5$

2) $k = -2$

3) $k = 14$

Evaluate each expression for the given value of the variable.

4) $4x - 3$ for $x = 2$

5) $5x^2 + 3x$, for $x = (-3)$



**Pause the video and try problems # 1- 6 on your own!
Then press play and check your answers with a color pen.**

Examples: Evaluate $k + 8$ for each value of k .

1) $k = -5$

2) $k = 2$

3) $k = -8$

Evaluate each expression for the given value of the variable.

4) $-5x - 3$ for $x = -2$

5) $5x^3 + 3x$, for $x = 4$

By the end of this lesson you will be able to _____.

Example 1 - Which of the following equations are true?

What is an *equation*? - _____

What does it mean for an equation to be true? _____

Create three equations that are true.

1) _____ 2) _____ 3) _____

Example 2 - Solve for the variable x in the equation.

$$3 + x = 29$$

What do I need to do?

1. _____

2. _____

Example 3 - Solve for the variable x in the equation.

$$x - 12 = -15$$

What do I need to do?

1. _____

2. _____

Example 4 - Solve for the variable x in the equation.

$$-3x = -18$$

What do I need to do?

1. _____

2. _____

Example 5 - Solve for the variable x in the equation.

$$\frac{x}{7} = 21$$

What do I need to do?

- _____ 1. _____
_____ 2. _____

What operation will you need to do in order to solve for the variable in each equation below?

What will the solution for x be?

1) $\frac{x}{-9} = 3$

3) $11 + x = 6$

2) $12x = 144$

4) $x - 32 = -9$

SHOWTIME - You Try!

Which of the following values for x will satisfy the equation $4x + 2 = -x + 17$

a) $x = -3$

b) $x = 2$

c) $x = 3$

d) $x = 4$

Solve for the variable x in each equation. Make sure to check your work

1) $x - 31 = 55$

2) $15x = -60$

3) $10 + x = -19$

4) $\frac{x}{-4} = -8$

By the end of this lesson you will be able to _____.

Which operation can you perform to undo the following operations?

- 1) Addition can be reversed with _____.
- 2) Multiplication can be reversed with _____.
- 3) Subtraction can be reversed with _____.
- 4) Division can be reversed with _____.

Example 1 - Solve for the variable x in the equation.

$$2x - 11 = 33$$

What do I need to do?

- | | |
|-------|----------|
| _____ | 1. _____ |
| _____ | 2. _____ |
| _____ | 3. _____ |

What two operations did you use to solve this equation? _____ and _____

Example 2 - Solve for the variable x in the equation.

$$-4x + 5 = -11$$

What do I need to do?

- | | |
|-------|----------|
| _____ | 1. _____ |
| _____ | 2. _____ |
| _____ | 3. _____ |

What two operations did you use to solve this equation? _____ and _____

Example 3 - Solve for the variable x in the equation.

$$\frac{x}{5} + 23 = 32$$

What do I need to do?

- _____
- _____
- _____
1. _____
 2. _____
 3. _____

What two operations did you use to solve this equation? _____ and _____

Example 4 - Solve for the variable x in the equation.

$$-5 + \frac{x}{2} = -21$$

What do I need to do?

- _____
- _____
- _____
1. _____
 2. _____
 3. _____

What two operations did you use to solve this equation? _____ and _____

SHOWTIME - You Try!

Solve for the variable x in each equation.

1) $12x + 18 = -6$

2) $\frac{x}{4} + 9 = 12$

3) $8 - 5x = 18$

4) $4 - \frac{x}{9} = -12$

By the end of this lesson you will be able to _____

Example 1 - Solving equations using 3 math operations

$$\frac{2x}{5} + 12 = 8$$

What do I need to do?

1. _____
2. _____
3. _____
4. _____

What three operations did you use to solve this equation? _____, _____, and

Example 2 - Solve Equations with Like Terms on Opposite Sides

$$4x - 9 = 7 + 2x$$

What do I need to do?

1. _____
2. _____
3. _____

Example 3 - Solve Equations with the Distributive Property

$$3(x + 7) = 9$$

What do I need to do?

1. _____
2. _____
3. _____
4. _____

Example 4 - Solve Equations with Like Terms and Distributive Property

$$-(x+3)=9x+7$$

What do I need to do?

1. _____
2. _____
3. _____
4. _____

SHOWTIME - You Try!

Solve for the variable x in the equation.

1) $4x+10=-6x$

2) $-5(x+7)=16$

3) $\frac{5x}{2}+7=12$

4) $4(2-x)=-2x+10$

By the end of this lesson you will be able to _____.

List three words that represent each of the four math operations.

1) Addition _____

2) Subtraction _____

3) Multiplication _____

4) Division _____

Example 1 - Seven more than some number is equal to nine. What is the number?

What do I need to do?

1. _____

2. _____

3. _____

4. _____

Example 2 - The length of a rectangle is twice as long as the width. The perimeter of the rectangle is equal to 36 meters. What are the dimensions of the rectangle?

What do I need to do?

1. _____

2. _____

3. _____

4. _____

5. _____

Example 3 - Set up an equation with variables on both sides

Sam and Richard are the same age. Sam is five times Jessica's age. Richard is twelve years older than Jessica's age. How old are Sam, Richard, and Jessica?

What do I need to do?

1. _____

2. _____

3. _____

4. _____

5. _____

SHOWTIME - You Try!

Read each problem carefully and create an equation in order help you solve each problem.

1) Five times some number is the same as sixteen more than the same number. What is the number?

2) The perimeter of a square is 48 cm. What is the length of each side?

3) Joseph is four years older than Mel. Rob is twice as old as Joseph. Rob and Mel are twins. How old are each of the boys?