

## Review Sheet Lesson 41-50

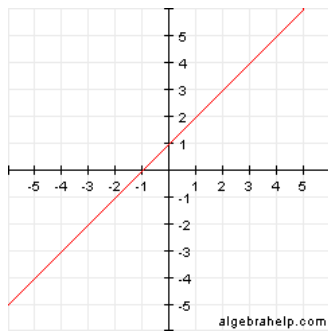
### Finding Rate of Change and Slope

SLOPE:  $\text{rise} = \frac{\text{change in } y}{\text{run} \quad \text{change in } x}$

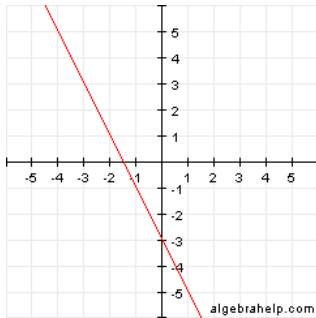
Given 2 points:  $(x_1, y_1) (x_2, y_2)$

Formula:  $\frac{y_2 - y_1}{x_2 - x_1}$

1. Find the slope of a line  $(-3, 7)$  and  $(-12, 15)$
2. Find the slope of a line  $(10, 12)$   $(12, 15)$
3. Write an equation with  $m = -7$   $b = \frac{1}{2}$
4. Find the slope of the line



5. Write an equation for the line



Find the Constant Rate of Change in  
the table

	+1	+1	+1	
	↷	↷	↷	
Hours (x)	1	2	3	4
Feet (y)	-12	-14	-16	-18
$\frac{\text{change in } y}{\text{change in } x}$		↷	↷	↷
		-2	-2	-2
				$\frac{-2}{1}$

### Solving Percent Problems

Translate the Equations Using:    IS means EQUALS    OF means MULTIPLY

OR...

Use Proportions:  $\frac{\text{is}}{\text{of}} = \frac{\%}{100}$

What number is 35% of 80?

Solve using a translation

$$n = \frac{35}{100} \times 80$$

$$n = (0.35)(80)$$

$$n = 28$$

Solve using a proportion

$$\frac{35}{100} = \frac{n}{80}$$

$$100n = (35)(80)$$

$$\frac{100n}{100} = \frac{2,800}{100}$$

$$n = 28$$

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## Simplifying Rational Expressions

Factor GCF and Find Excluded Values... SIMPLIFY!!!!!!!!!!

$$\begin{aligned} \frac{4x-1}{x+4} - \frac{2x-9}{x+4} &= \frac{(4x-1)-(2x-9)}{x+4} = \\ &= \frac{4x-1-2x+9}{x+4} = \\ &= \frac{2x+8}{x+4} = \\ &= \frac{2(x+4)}{x+4} = 2 \end{aligned}$$

## Translate Between Words and Inequalities



Add	Subtract	Multiply	Divide
plus, sum, increased by, together, combine, more than, combined, total of, added to	minus, difference, less/fewer than, find out how much more or less than, decreased by, difference between/of	times, product, equal groups of, multiplied by, product of, increased/decreased by a factor of (this type can involve both addition or subtraction and multiplication.)	divided by, quotient, separate into equal groups, per, a, out of, ratio of, quotient of percent (divide by 100)

>	≥	<	≤
is more than is greater than is larger than above	minimum at least is not less than not smaller than	is smaller than is less than below	maximum at most not more than is not greater than

# Simplifying Square Root and Higher Roots

**Perfect Squares**

- $1^2 = 1$
- $2^2 = 4$
- $3^2 = 9$
- $4^2 = 16$
- $5^2 = 25$
- $6^2 = 36$
- $7^2 = 49$
- $8^2 = 64$
- $9^2 = 81$
- $10^2 = 100$
- $11^2 = 121$
- $12^2 = 144$
- $13^2 = 169$
- $14^2 = 196$
- $15^2 = 225$
- $16^2 = 256$
- $17^2 = 289$
- $18^2 = 324$
- $19^2 = 361$
- $20^2 = 400$

index  $n$  radical

$\sqrt[n]{x}$  radicand

$\sqrt[n]{x} = r$  means  $r^n = x$

# Percent Change

$$\% \text{ change} = \frac{\text{Final value} - \text{Initial Value}}{\text{Initial Value}} \times 100$$

**Discount**

A shirt that was \$25 is on sale for 20% off. What is the sale price?

<p><b>Method 1</b></p> <p>Subtract the discount from the price:</p> <p><math>\\$25 \times 20\% = \text{discount}</math>  <math>\\$25 \times .2 = \\$5.00 \text{ discount}</math>  <math>\\$25 - \\$5 = \\$20.00</math></p>	<p><b>Method 2</b></p> <p>Multiply the price by 80% since that is what you ARE paying.</p> <p><math>\\$25 \times 80\% = \text{total cost}</math>  <math>\\$25 \times .8 = \\$20.00</math></p>
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So, the total cost was \$20.00.

7.6 Objective - To solve problems involving mark-up and discount.

Original Price + Mark-up = New Price

A \$60 shirt was marked up 20% and sold over the Internet. How much was it marked up and what was the new price?

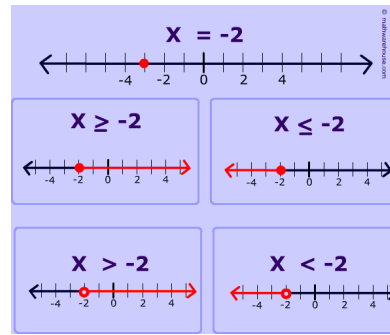
<u>Mark-up</u>	<u>New Price</u>	
20% of \$60	$\$60 + (20\% \text{ of } \$60)$	} Adds the Money
$0.20 \bullet \$60$	$\$60 + 0.20 \bullet \$60$	
\$12	$\$60 + \$12 = \$72$	
	(100% + 20%) of \$60	} Adds the Percents
	120% of \$60	
	$1.20 \bullet \$60 = \$72$	

# Analyzing Measure of Central Tendency

<p><b>mean</b></p> <p>The mean is the average or norm.</p> <ul style="list-style-type: none"> <li>• Add up all of the values to find a total.</li> <li>• Divide the total by the number of values you added together.</li> </ul> <p><math>2 + 2 + 3 + 5 + 5 + 7 + 8 = 32</math>  <small>There are 7 values</small>  <math>32 \div 7 = 4.57</math>  <small>Divide the total by 7</small></p>	<p><b>median</b></p> <p>The median is the middle value.</p> <ul style="list-style-type: none"> <li>• Put all of the values into order.</li> <li>• The median is the middle value.</li> <li>• If there are two values in the middle, find the mean of these two.</li> </ul>
<p><b>mode</b></p> <p>The mode is the most frequent value.</p> <ul style="list-style-type: none"> <li>• Count how many of each value appears.</li> <li>• The mode is the value that appears the most.</li> <li>• You can have more than one mode.</li> </ul> <p>2, 2, 3, 5, 5, 7, 8  <small>The modes are 2 and 5</small></p>	<p><b>range</b></p> <p>The range is the difference between the lowest and highest value.</p> <ul style="list-style-type: none"> <li>• Find the highest and lowest values.</li> <li>• Subtract the lowest value from the highest.</li> </ul> <p>2, 2, 3, 5, 5, 7, 8  <small>Lowest Highest</small>  <math>8 - 2 = 6</math>  <small>The range is 6</small></p>

# Graphing Inequalities

Symbol	Meaning	Closed or Open Circle
$<$	Less Than	Open $\circ$
$>$	Greater Than	Open $\circ$
$\leq$	Less Than or Equal to	Closed $\bullet$
$\geq$	Greater Than or Equal to	Closed $\bullet$



## Writing Equations in Slope Intercept Form

