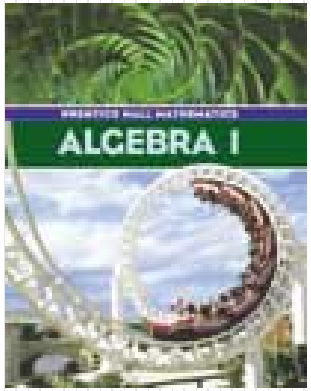
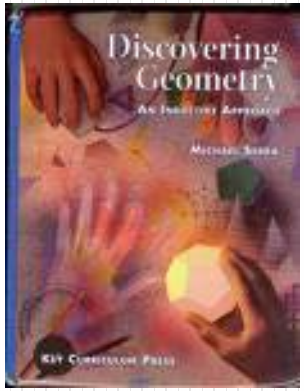
Mr. Northcutt's Math Classes
Class Presentation

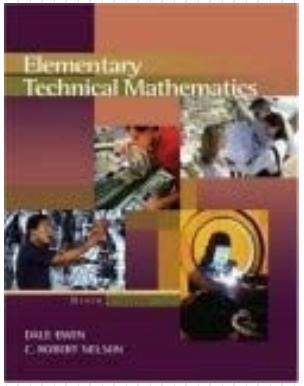
November 7, 2008 (46)



Math 1



Math 2



Applied Math

Math 1 – Daily Summary

- **Announcements**
  - 1st Quarter Ends Friday
    - All Past Due Tests or HW Must be Completed Today
- **Class Objectives**
  - Ratio & Proportion (Continued)
- **Assignment**
  - **Lesson 4-1**: 32-37, 38-48 EVEN, 50-52, 66

HW Solutions

2: $0.40/lb

4: 400 cal/h

6: $0.09/oz

8: A

10: A

12: 1.2

14: 7.5

16: 5

18: 7.5

20: -20

22: 9

24: 6 2/3

26: 90

28: 17.6

30: 700 (see notes)

Problem #30

- **A canary's heart beats 200 times in 12 seconds. Use a proportion to find how many times its heart beats in 42 seconds.**

Let **b** = Heart beats in 42 seconds

$$\frac{beats}{sec} \quad \text{Beats in 12 seconds} \quad = \quad \text{Beats in 42 seconds} \quad \frac{beats}{sec}$$

$$\frac{beats}{sec} \quad \frac{200 \text{ beats}}{12 \text{ sec}} = \frac{b \text{ beats}}{42 \text{ sec}} \quad \frac{beats}{sec}$$

$$12b = 200(42)$$

$$b = \frac{200(42)}{12}$$

$$t = 700 \text{ beats}$$

Problem Solving with Proportions

- **In 2001, Lance Armstrong won the Tour de France, completing the 3454 km course in 86.3 hours. Traveling at his average speed, how long would it take him to ride 185 km?**

Let **t** = Time to ride 185 km

$\frac{km}{hr}$ **Tour de France Average Speed** = **185 km Trip Average Speed** $\frac{km}{hr}$

$$\frac{km}{hr} \quad \frac{3454 \text{ km}}{86.3 \text{ hr}} = \frac{185 \text{ km}}{t \text{ hr}} \quad \frac{km}{hr}$$

$$3454t = 86.3(185)$$

$$t = \frac{86.3(185)}{3454}$$

$$t \approx 4.3 \text{ hr}$$

Math 2 – Daily Summary

- **Announcements**
  - 1st Quarter Ends Friday
    - All Past Due Tests or HW Must be Completed Today
- **Class Objectives**
  - Triangle Inequalities
- **Assignment**
  - **Lesson 5.3**: 1-18, 23, 24, 27

HW #22 - Answer

- **Find the point of intersection of the two lines:** $y = 2x + 3$, $3x - 4y = 8$

Rewrite in Standard Form

$$-2x + y = 3$$
$$3x - 4y = 8$$

Multiply 1st Equation by 4

$$-8x + 4y = 12$$
$$3x - 4y = 8$$

Add Equations → "Elimination"

$$-5x = 20$$
$$x = -4$$

Substitute and Solve for y

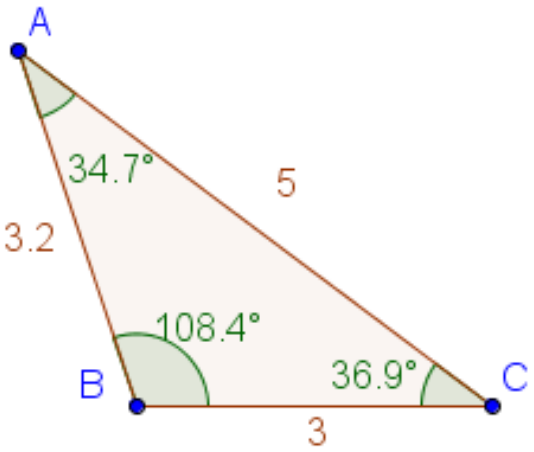
$$-2(-4) + y = 3$$
$$8 + y = 3$$
$$y = -5$$

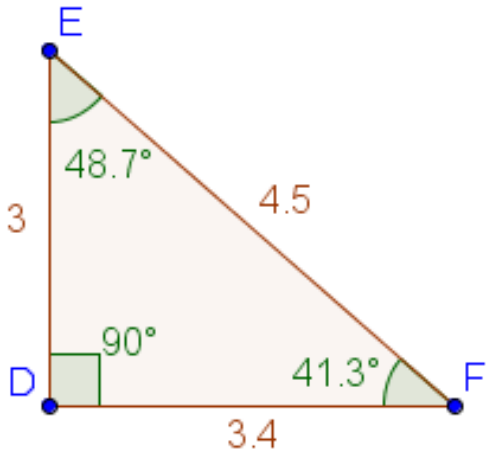
Triangle Investigation - Setup

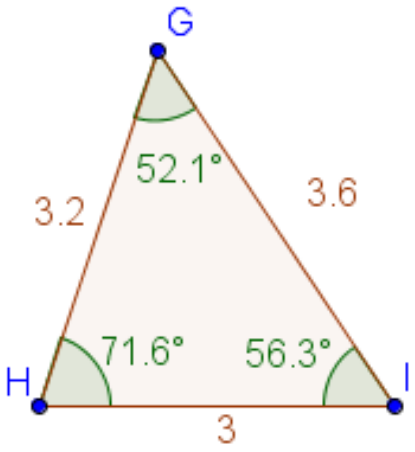
- **Directions:**

Draw Accurately!

1. Get a sheet of scratch paper and a protractor.
2. Draw 3 triangles (1 obtuse, 1 right, and 1 acute).
3. Measure and Label the ***sides*** and ***angles*** of each triangle.







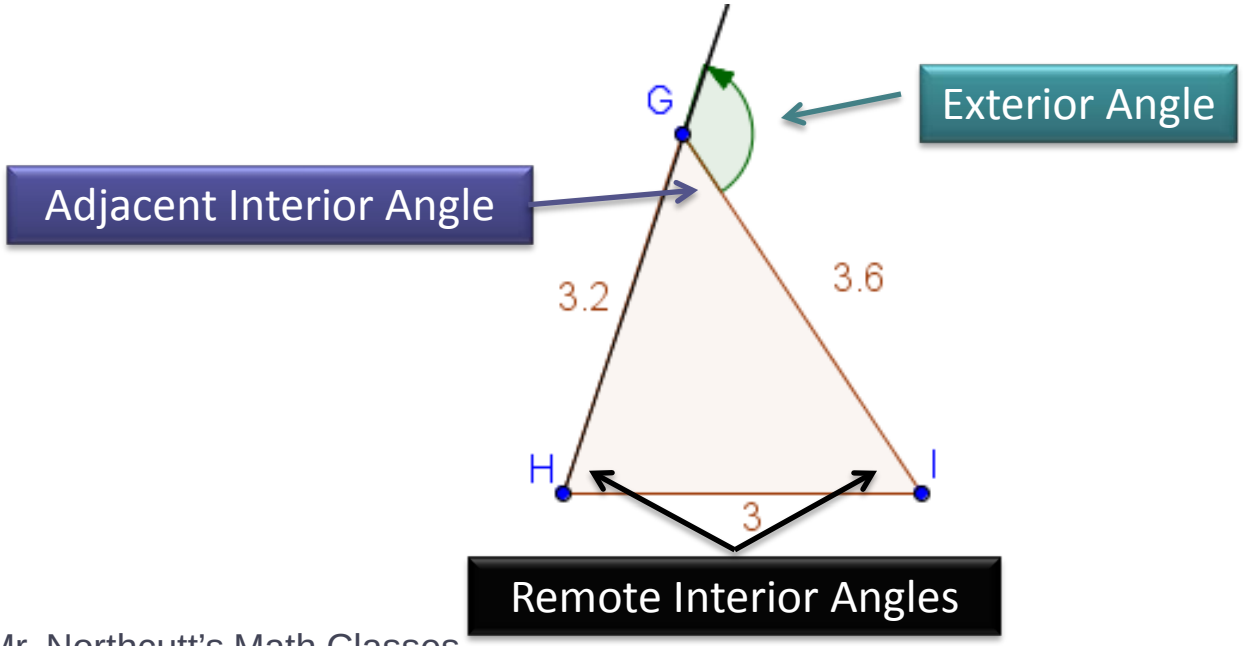
Questions?

1. **Compare the sum of the lengths of any two sides of a triangle with the length of the third side. Do you see a relationship?**

2. **For each triangle, compare the length of each side to the measure of its opposite angle. Do you see a relationship between side length and angle measure?**

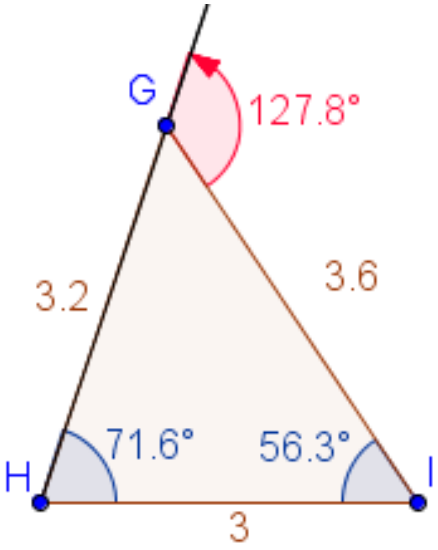
Investigation - Exterior Angles

- **Directions:** (start with one of you existing triangles)
  1. Extend the length of one side of any triangle (this creates an **Exterior Angle**).
  2. Measure and Label the Exterior Angle (the **Interior Angles** should already have a measure).



Question?

- **How does the <u>sum of the measure of the two remote interior angles</u> compare with the <u>measure of the exterior angle</u>?**



Conjectures

- **Triangle Inequality Conjecture**
  - The sum of the lengths of any two sides of a triangle is *greater than* the length of the third side.
- **Side-Angle Inequality Conjecture**
  - In a triangle, *the longest side is opposite the angle with greatest measure, and the shortest side is opposite the angle with least measure*.
- **Triangle Exterior Angle Conjecture**
  - The measure of an exterior angle of a triangle is *equal to the sum of the measures of the remote interior angles*.

Applied Math – Daily Summary

- **Announcements**
  - 1st Quarter Ends Friday
    - All Past Due Tests or HW Must be Completed Today
- **Class Objectives**
  - Translating English to Algebra
- **Assignment**
  - **Lesson 6.5**: 1-25 ODD

Key Words with Their Translation

- **Common words/phrases that translate to math:**

+	–	x	÷	=
plus	minus	times	divide	equal or equals
increased by	decreased by	product	quotient	is or are
added to	subtract	multiply by	divided by	is equal to
more than	less than	double or twice		result is
sum of	difference	triple or thrice		
	subtract from			

English Analogy

- **Translating English into Algebra is critical in applied mathematics (this is how it works in the "real world").**

- **Suggested Steps:**
  1. Identify the Variable(s) – "Subject" in English
  2. Identify the Operation(s) – "Verb" in English
  3. Combine Variables & Operations into an Expression – "Sentence" in English

Example

- **One number is four times another, and their sum is twenty.**

$$n = \text{a number}$$

$$4n = \text{four times a number (the } 2^{\text{nd}} \text{ number)}$$

$$n + 4n = \text{the sum of the two numbers}$$

$$n + 4n = 20$$

Example

- **If twelve is added to the product of a number and twelve, the sum is 72.**

$$n = \text{a number}$$

$$12n = \text{the product of a number and } 12$$

$$12n + 12 = 12 \text{ added to the product of a number and } 12$$

$$12n + 12 = 72$$