

# Mr. Northcutt's Math Classes Class Presentation

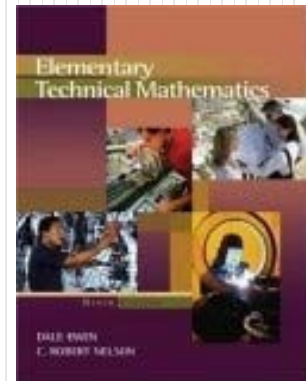
February 17, 2009 (103)



Math 1



Math 2



Applied Math



# Math 1 – Daily Summary

- **Announcements**

- Begin Chapter 6 - Linear Equations and Their Graphs
- **QUIZ on Sections 6-1 thru 6-2 on Friday!**

- **Class Objectives – *What you should learn today!***

- Understanding of “Rate of Change”
- Understanding of “Slope”
- Ability to Identify the “Rate of Change” from:
  - Data in a Table
  - Data in a Graph

- **Assignment**

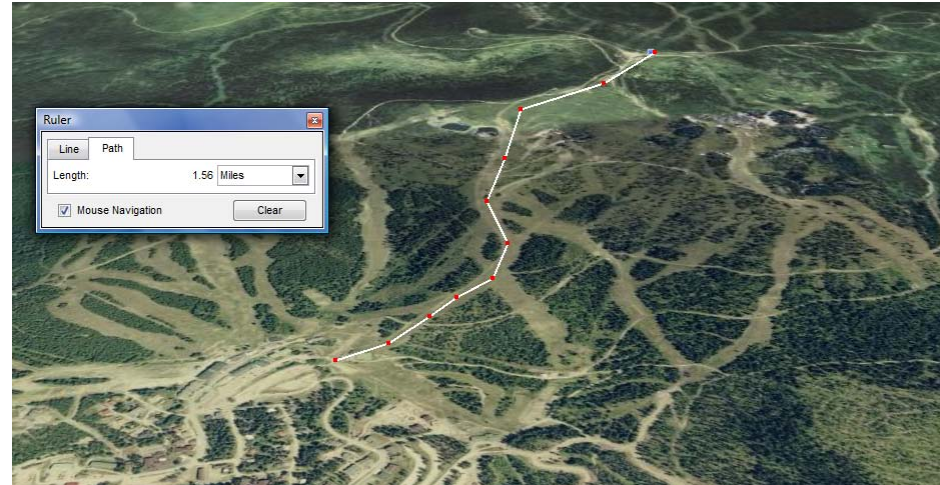
- **Section 6-1: 1-6, 27-29, 54**



# Example of Rate of Change

- **Whitefish/Big Mountain**

- Summit = **6817 ft**
- Base = **4464 ft**
- Length of Run = **1.56 Miles**  
or **8237 ft**



- **What is the Average Rate of Change (Descent) over the length of the run?**

- Amount of Descent vs. Distance Travelled (as a Ratio)

$$\frac{6817 \text{ ft} - 4464 \text{ ft}}{8237 \text{ ft}} = 0.29 \frac{\text{ft (descent)}}{\text{ft (travelled)}}$$



# Rate of Change (Defined)

- **Rate of Change**

- Allows you to see the **relationship** between **two quantities** that are changing.

$$\begin{aligned}\text{Rate of Change} &= \frac{\text{Change in Dependent Variable}}{\text{Change in Independent Variable}} \\ &= \frac{\text{Change in } Y}{\text{Change in } X} \\ &= \frac{\Delta Y}{\Delta X}\end{aligned}$$



# Rate of Change using a Table

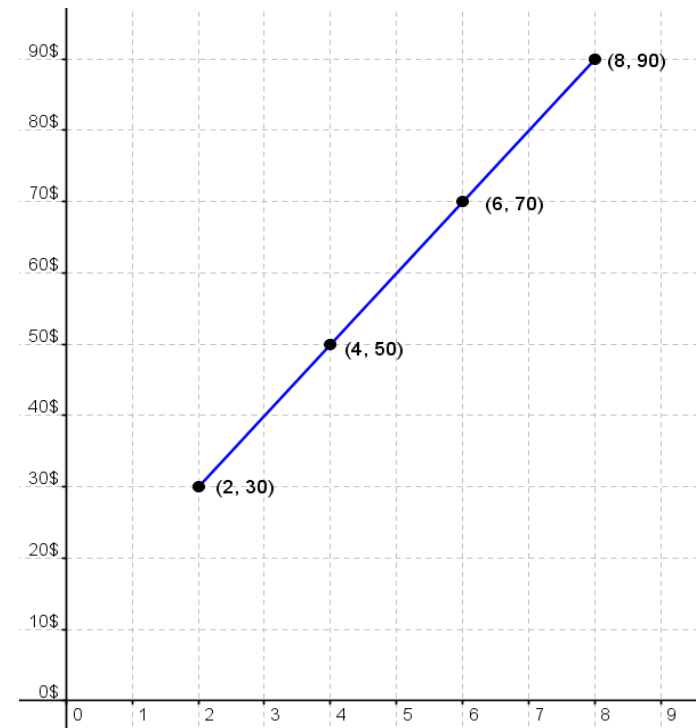
- Find the Rate of Change. What does it represent?

# of Days	Rental Charge
2	\$30
4	\$50
6	\$70
8	\$90

+2 Days {  
+2 Days {  
+2 Days {

} +\$20  
} +\$20  
} +\$20

$$\text{Rate of Change} = \frac{+\$20}{+2\text{Days}} = \frac{\$10}{\text{Day}}$$

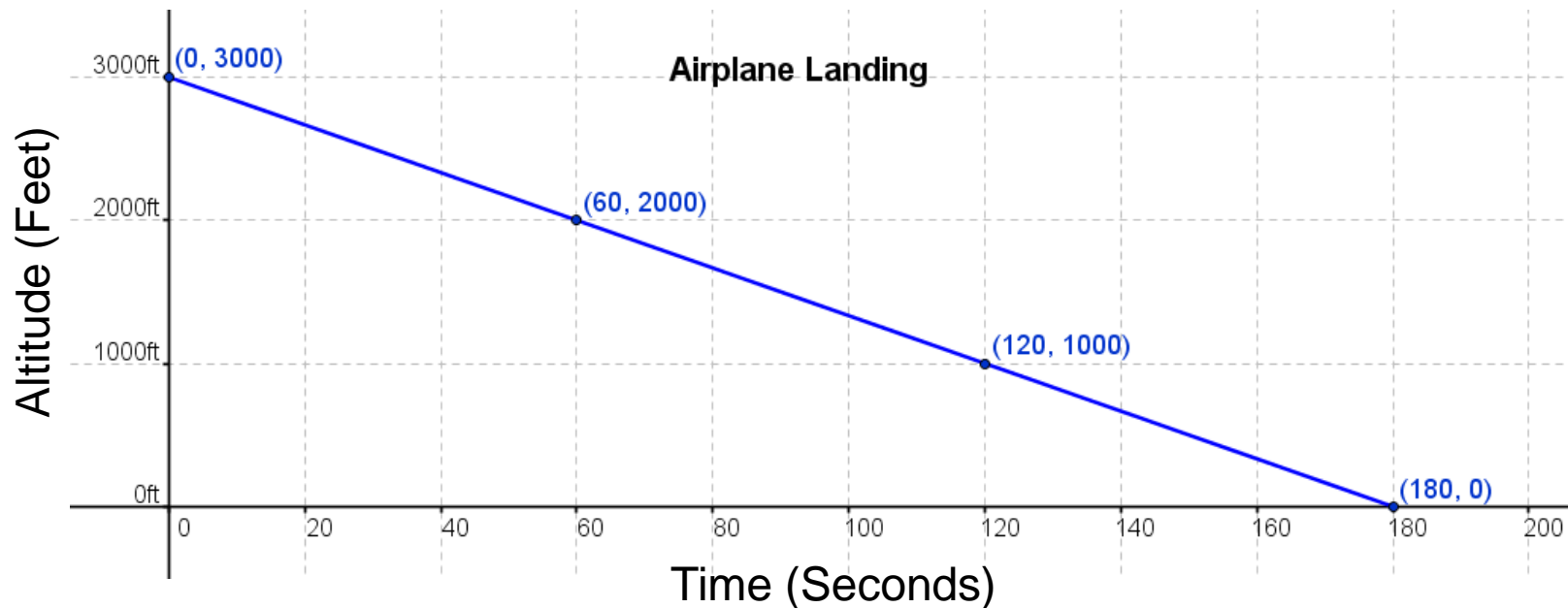


**Rental  
Charge  
per Day**



# Rate of Change using a Graph

- Graph shows an airplane landing. Find the Rate of Change. What does it mean?



$$\text{Rate of Change} = \frac{\text{Vertical Change}}{\text{Horizontal Change}} = \text{—————}$$

# Geogebra - Rate of Change/Slope



- **Show interactive Geogebra applet to show the relationship between:**
  - A Line & its Slope
  - Points on a Line and Slope
    - Does it matter which points on a line you use to calculate its slope?
  - Equation of a Line (Slope + y-intercept)



# Math 2 – Daily Summary

- **Announcements**

- Begin Chapter 10 - Pythagorean Theorem
- **QUIZ on Lessons 10-1 thru 10-3 on Friday!**

- **Class Objectives – *What you should learn today!***

- Understand terminology for and the relationship between the sides of a RIGHT TRIANGLE.
- Understand an algebraic & a geometric proofs of the Pythagorean Theorem
- Apply the Pythagorean Theorem to “basic” problems.

- **Assignment**

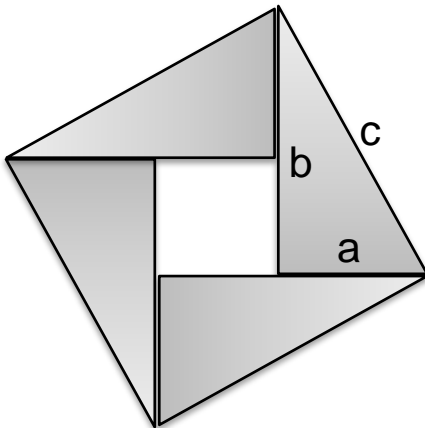
- **Section 10.1: 1-15**





# Investigation

1. **FOLD** a sheet of paper in  $\frac{1}{2}$  twice (two folds).
2. **CUT** the folded sheet straight across to create 4 congruent **RIGHT** triangles then cut to separate the 4 triangles.
3. **LABEL** the sides of each triangle (a, b and c - letting c be the longest side). Label each the same!
4. **ARRANGE** the triangle as shown below...



$$Area_{\text{Large Square}} = Area_{\text{Small Square}} + Area_{\text{Triangles}}$$

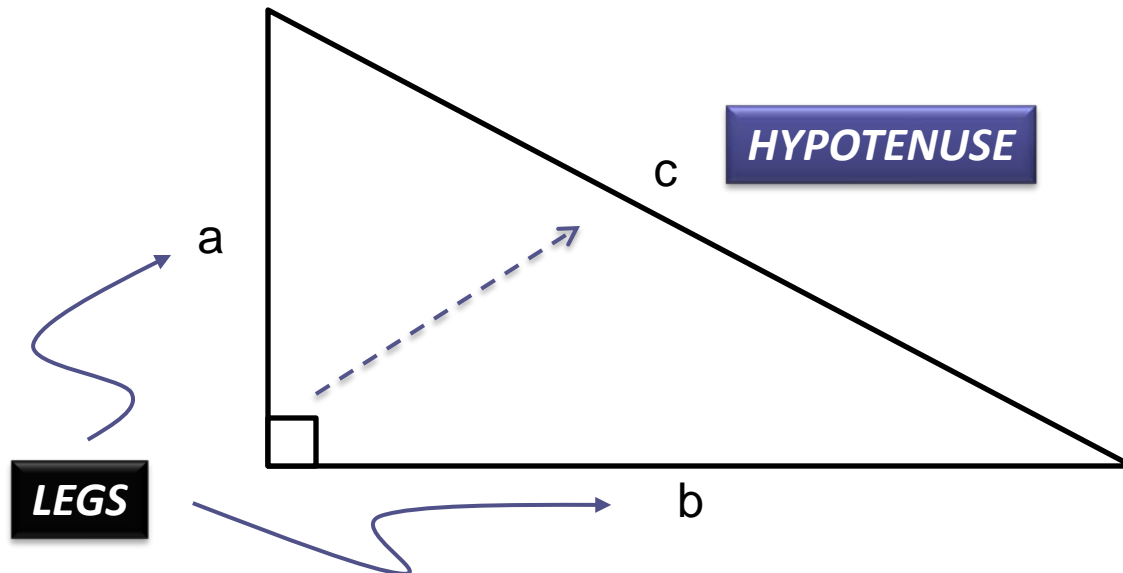


# Pythagorean Theorem

- For **ANY RIGHT TRIANGLE:**

- If  $a$  and  $b$  are the lengths of the legs and  $c$  is the length of the hypotenuse, then:

$$a^2 + b^2 = c^2$$



# Geogebra Demonstration



- **Go to Geogebra to show Pythagorean Theorem dynamically.**



# Applied Math – Daily Summary

- **Announcements**

- Math-Caching Project this Week!

- **Class Objectives – *What you should learn today!***

- Understand what “Math-Caching” is.
- Understand the Project and what is expected of you.
- Begin the ***Math-Caching Project***. Preliminary expectations:
  - Use of MS Equation Editor; Use of Color and Graphics
  - 3 Problems - Easy to Challenging
  - Professional/Highest Quality
  - Due on Monday, February 23<sup>rd</sup> (No Late Submissions!)

- **Assignment**

- Math Caching Project



# Topic Areas

- **Select from the Following Areas (try to cover all areas - limit 2 per area):**
  - Order of Operations
  - Fractions
  - Solving Equations
  - Linear Equations
  - Quadratic Equations
  - Polynomials
  - Measurement, Precision & Accuracy
  - Geometry
  - Trigonometry (Tucker)
  - Applications of Mathematics
  - History of Mathematics
  - Others - Discuss with me first!