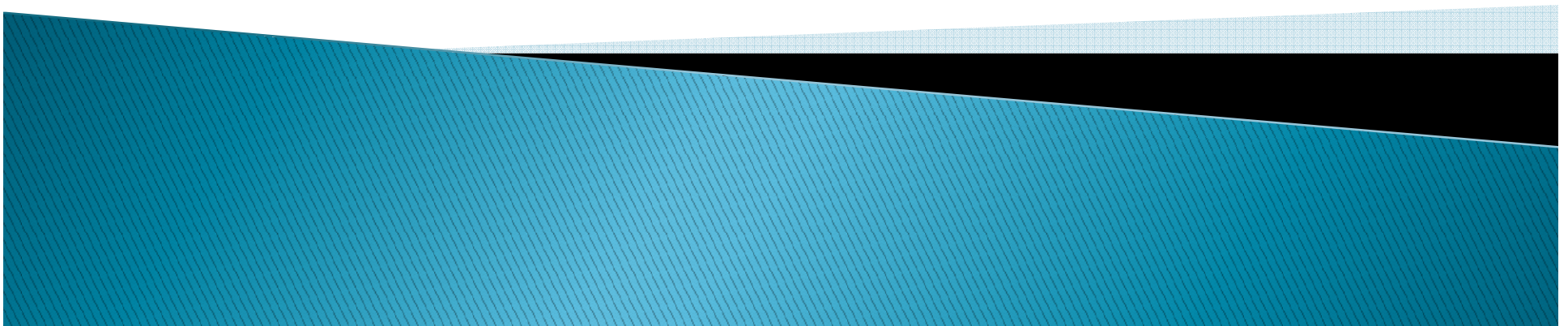


Prealgebra Immersion (PI) at Pierce College

A new approach to numeracy

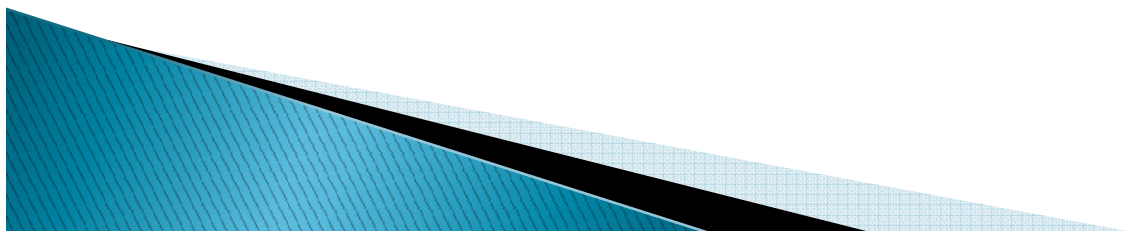


Activity 2 Slope and Linear Models

The taxi fare in three different cities is described below. In each city, you pay an initial charge when you get into the taxi, and then your fare is based on the distance you travel. Each city uses a different distance unit to compute the fare.

City	Initial Charge	Distance Unit	Charge per Unit
Boston	1.45	$\frac{1}{8}$ mile	0.30
Honolulu	2.25	$\frac{1}{4}$ mile	0.75
New York	2.50	$\frac{1}{5}$ mile	0.40

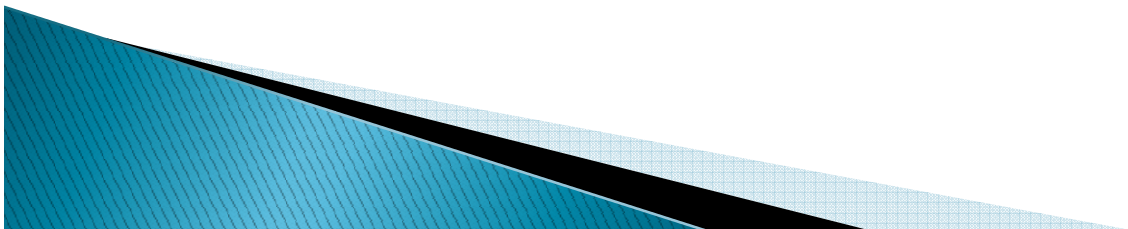
- a. Compute the charge per mile in each city. (Do not include the initial charge.) In which city do taxis charge the highest mileage rate?



Current curriculum before algebra

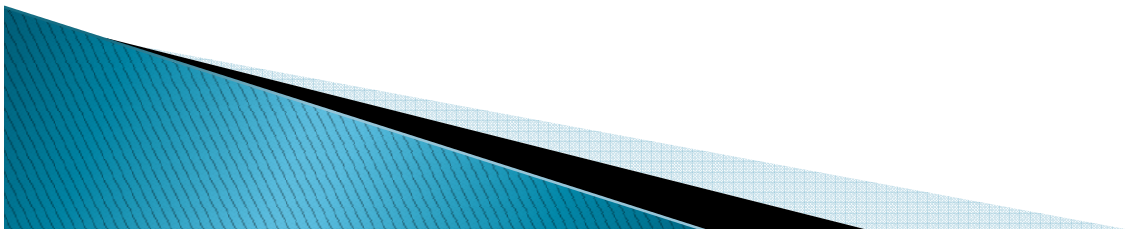
- ▶ Arithmetic (3 units)
- ▶ Prealgebra (3 units or 5 units)

Students do not have to place into
Prealgebra;
Arithmetic is optional



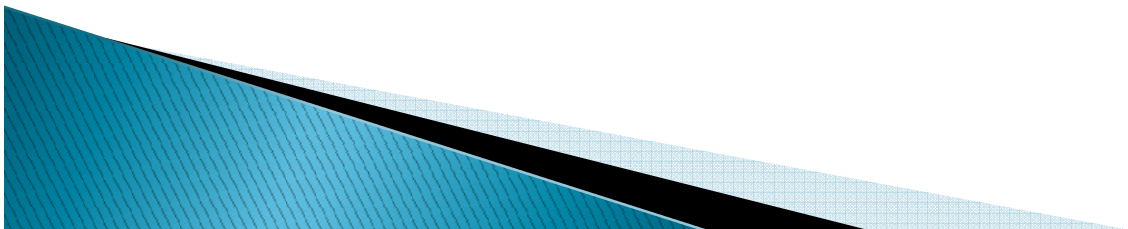
Plan for redesign

1. Raise placement cut-off scores but offer review sessions and re-test.
2. Replace pre-algebra curriculum with a single course



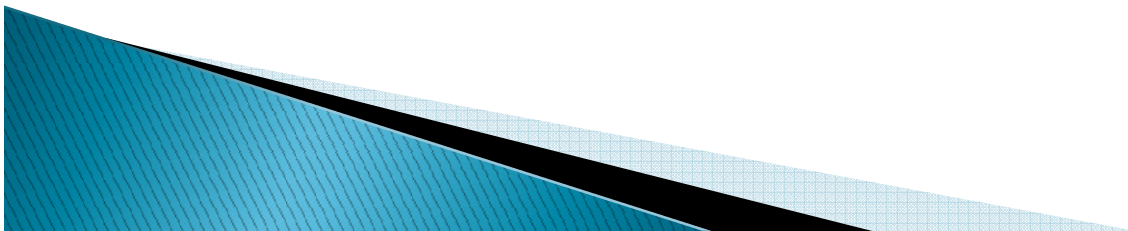
New Course

- ▶ Combined arithmetic and prealgebra
- ▶ 9 units—follows the ASAP immersion model
- ▶ 6 hours in class plus 3-hour lab



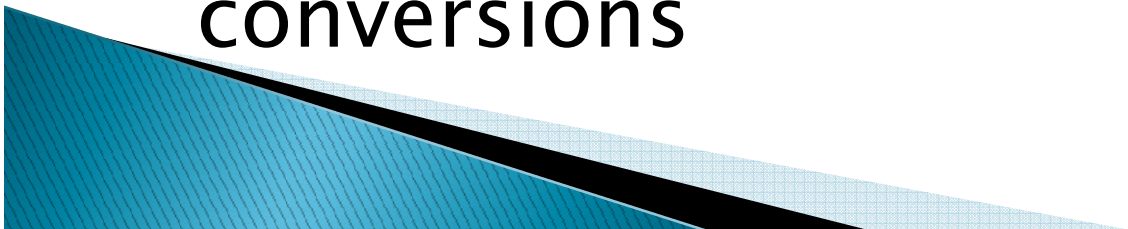
The focus is NOT:

- ▶ Practice with standard arithmetic algorithms.
- ▶ Preview of standard algebraic manipulations.



The focus is on

- ▶ Meaning of arithmetic operations
- ▶ Meaning of variables and writing algebraic expressions
- ▶ Interpreting points on a graph
- ▶ Area, perimeter, volume, and surface area
- ▶ Proportional reasoning, including rates, comparisons, and unit conversions



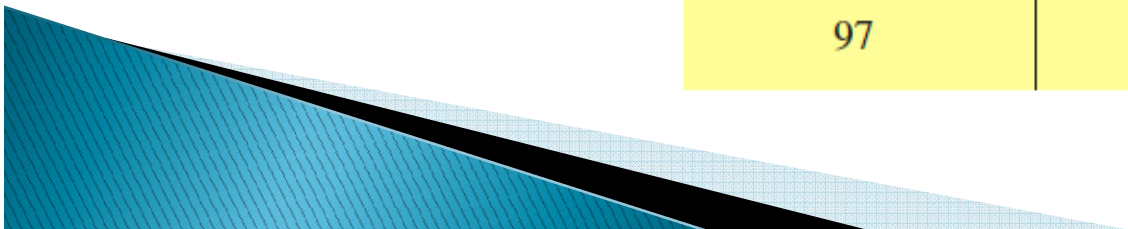
Sample problems

Write a mathematical sentence that gives the number of study groups in terms of the number of students:

<i>Students</i>	<i>Study groups</i>
20	5
28	7
40	10

Write a mathematical sentence that tells how many minutes are left in a 2-hour (120-minute) game:

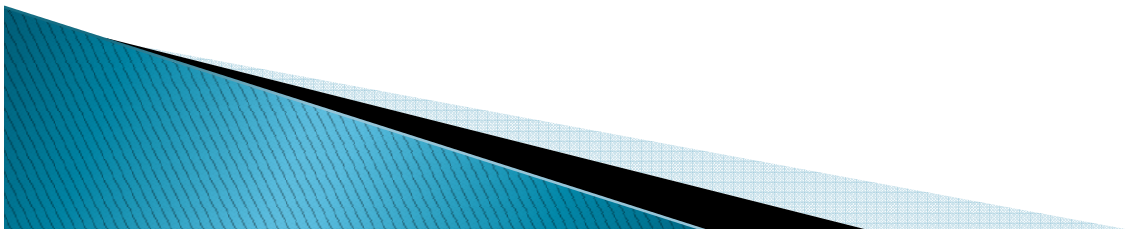
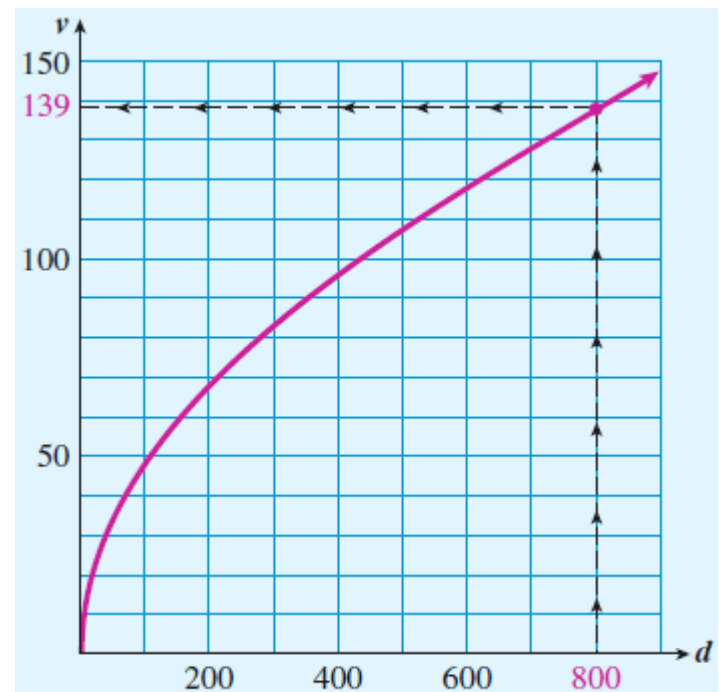
<i>Minutes played</i>	<i>Minutes left</i>
15	105
40	80
97	23



A car traveling at velocity v leaves skid marks of length d when it brakes suddenly, where

$$v = 4.9\sqrt{d}$$

- a) If a car leaves skidmarks 800 feet long, how fast was it going when it braked?
- b) What does the point (100, 49) tell you about this scenario?



Lake Superior has an area of 31,700 square miles and an average depth of 483 feet.

Find the approximate volume of Lake Superior in cubic feet.

