Math 7H - Unit 3

Day 9 - Direct Variation

Lesson Objectives:

- I can identify the constant of proportionality (unit rate) in equations.
- I can represent proportional relationships by equations.

We can write direct variation equations (proportional relationships) using the substitution property and other properties of equality.

The variables x and y vary directly. Use the values to write an equation that relates x and y.

$y = kx$

1. y = 6; x = 2 (2,6)

$\frac{y}{x} = k \quad \frac{6}{2} = 3$

$y = kx$

$\frac{6}{2} = \frac{k2}{2}$

$3 = k$

$y = 3x$

2. y = 15; x = 3

$\frac{15}{3} = 5$

$y = 5x$

Once we have written a direct variation equation, we can find any unknown value by substitution.

If y varies directly with x, write an equation for the direct variation. Then find each value.

3. If y = 14 when x = 8, find y when x = 12. (8,14) (12,y)

$\frac{14}{8} = \frac{k8}{8}$

$\frac{7}{4} = k$

$y = \frac{7}{4}x$

$y = \frac{7}{4}(12)$

$y = 21$

4. If y = -6 when x = -24, what is the value of x if y = -7?

$\frac{-6}{-24} = \frac{1}{4} = k$

$y = \frac{1}{4}x$

$-7 = \frac{1}{4}x \cdot 4$

$-28 = x$

Homework

Direct Variation WKS

* Individual Think Time *

What to do if you get stuck...

1. Reread the problem. Did you write it down correctly?
2. Reread your notes. Is there a problem similar that we did together in class?
3. Find a problem similar in your book. Try this one to see if it helps.
4. Skip the problem until the end of Individual Think Time. Then ask an "educated" question of a neighbor or Mrs. Call.

Today we're working by...