

Problem of the Day: Find the slope of the line passing through the points (4, -3) and (-2, 6).

Plan for the Day:

Finish notes from last week

More practice with direct variation

Objective: We will be able to write and solve equations in direct variation.

Today is National Pumpkin Cheesecake Day!!

Example: For the following examples, y varies directly as x. Write a direct variation equation that relates x and y. Then solve.

b. If $y = 22$ when $x = 8$, find y when $x = -16$.

$$y = kx \quad k = \frac{y}{x} \quad \begin{array}{r|rr} x & 8 & -16 \\ \hline y & 22 & \end{array}$$

$$k = \frac{22}{8} = \frac{11}{4}$$

$$y = \frac{11}{4}x$$

$$y = \frac{11}{4}(-16) = -44$$

Example: The mass of a substance varies directly with the volume of the substance. The volume of 50 kilograms is 40 liters. What is the volume, in liters, of 6.5 kilograms?

$$\begin{array}{r|rr} \text{Kg} & 50 & 6.5 \\ \hline \text{L} & 40 & \end{array}$$

$$\frac{26}{5} = \frac{5x}{3}$$

$$x = 5.2$$

Example: The value of y varies directly with x. Write a function that represents the relationship between x and y if $y = \frac{20}{3}$ when $x = 30$.

$$y = kx \quad k = \frac{y}{x} \quad \frac{20}{3} \div \frac{30}{1}$$

$$k = \frac{20}{9}$$

$$y = \frac{20}{9}x$$