Direct Proportion

Lesson 4

Objective

Students will be able to represent proportional relationships between quantities.

Definition

Two quantities have a **direct proportion** relationship when an **increase or decrease in one quantity** causes the **same kind of change** in the other quantity.

In order to be proportional they have to have a **constant** ratio or **unit** rate.

- Direct proportion is also called **direct variation.**
- The constant ratio is also called the **constant of variation**.
- The constant of variation is also known as the **constant of proportionality**.

Method 1 Use Unlike units for each Ratio

ex. $\dfrac{\text{hours worked}}{\text{dollars earned}} = \dfrac{\text{hours worked}}{\text{dollars earned}}$

$\dfrac{5 \text{ hours}}{\$70} = \dfrac{h}{\$630}$ ⟵ Direct proportion

Method 2 Use Like Units for Each Ratio

ex. $\dfrac{\text{hours worked}}{\text{hours worked}} = \dfrac{\text{dollars earned}}{\text{dollars earned}}$

$$\dfrac{5 \text{ hours}}{h} = \dfrac{\$70}{\$630}$$

Example

A sample of paint contains 3 ounces of blue paint and 8 ounces of yellow paint. If you have a 24-ounce can of the blue paint, how much yellow paint should you mix with it in order to make the same color as the sample?