

5.1B & 5.1C Proportional & Nonproportional Relationships**Proportional Relationship** - when two or more ratios or rates are equal.**Nonproportional Relationship** - when two or more ratios or rates are not equal.Note: Use **UNIT RATE** to determine whether the relationship is proportional or not

Remember

Unit rate - a rate that has been reduced to a denominator of 1

Ex. 1: Determine whether a proportional relationship exists between the two quantities shown in the graph or table below. Explain your reasoning.

A:

Time (s)	Distance (m)
x	y
1	20
2	40
3	60
4	90

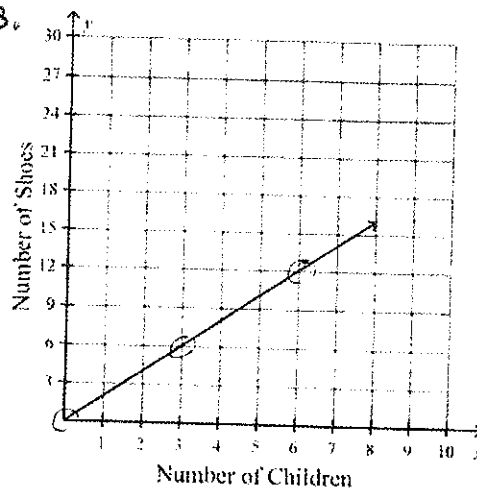
meters per second

Unit rates $\frac{y}{x}$ ← dependent on x
 $\frac{y}{x}$ ← independent variable y depends on x

$$\left(\frac{20}{1}\right) \quad \frac{40}{2} = \left(\frac{20}{1}\right) \quad \frac{60}{3} = \left(\frac{20}{1}\right) \quad \frac{90}{4} = \left(\frac{22.5}{1}\right)$$

Nonproportional because the unit rates are not the same.

B:

 y depends on $x \rightarrow \frac{y}{x}$

Note: Choose ordered pairs that are clearly defined... where the two gridlines intersect.

$$\frac{6}{3} = \left(\frac{2}{1}\right) \quad \frac{12}{6} = \left(\frac{2}{1}\right)$$

Proportional because there are 2 shoes for each child.

Proportional (on graph)

* line must be straight

* line passes through the origin (0,0)