

Algebra 7-1: Rate of Change

Vocab	Definition	Example
Rate of Change (slope)	<p>• how much something changes over time</p> <p>• $\frac{\text{Change in } y\text{'s}}{\text{Change in } x\text{'s}}$</p>	<p>• 55 mph</p> <p>• \$5.00 per hour</p> <p>• The temp drops 5° per hour</p>

Fill in the blanks to give the rate of change for each situation.

1. A plant grew 30 inches in 10 weeks.

Rate of Change = $\frac{3 \text{ in}}{1 \text{ week}}$

2. George lost 30 pounds in 12 weeks.

Rate of Change = $\frac{-2.5 \text{ lb}}{\text{week}}$

3. In 5 years, the school bought 20 SmartBoards.

Rate of Change = $\frac{4 \text{ SB}}{\text{year}}$

4. 2 inches of rain fell in 8 hours.

Rate of Change = $\frac{.25 \text{ in}}{\text{hr}}$

$$\frac{30 \text{ in} \div 10}{10 \text{ wk} \div 10} = \frac{3 \text{ in}}{1 \text{ wk}} \quad \left| \quad \frac{30 \text{ lbs} \div 12}{12 \text{ wks} \div 12} = \frac{2.5 \text{ lbs}}{1 \text{ week}}$$

$$\frac{2 \text{ in} \div 8}{8 \text{ hrs} \div 8} = \frac{.25 \text{ in}}{1 \text{ hr}}$$

$$\frac{20 \text{ SB} \div 5}{5 \text{ year} \div 5} = \frac{4 \text{ SB}}{1 \text{ year}}$$

Answer the following questions based on the following situation.

When Jordan was 10 years old, he was 4' 3".

When Jordan was 12 years old, he was 4' 7".

When Jordan was 16 years old, he was 5' 7".

When Jordan was 18 years old, he was 5' 9".

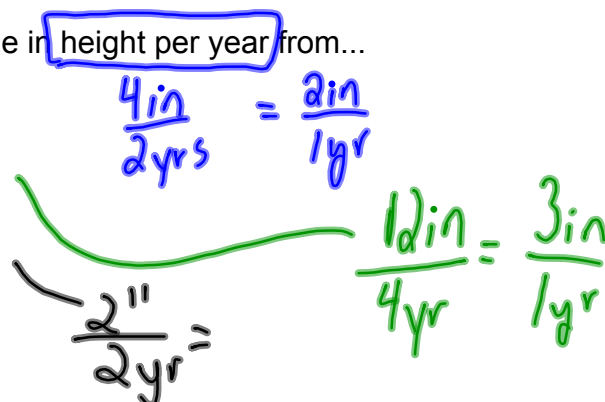


5. What is Jordan's average change in height per year from...

a. 10 to 12 years old? $\frac{2 \text{ in}}{\text{yr}}$

b. 12 to 16 years old? $\frac{3 \text{ in}}{\text{yr}}$

c. 16 to 18 years old? $\frac{1 \text{ in}}{\text{yr}}$



6. When did Jordan grow....

a. the fastest? 12 to 16

b. the slowest? 16 to 18

The data below represents how much money Sue had in her Piggy bank for the past 10 years.

x	Years	0	3	5	7	8	10
y	Money	\$20	\$100	\$100	\$140	\$140	\$0



7. Graph the data. (see next slide)

8. Between what years is the rate of change...

a. positive? 0-3, 5-7

b. negative? 8-10

c. zero? 3-5, 7-8

9. Find the rate of change between...

a. the first three years. 26.67/year

b. the 3rd and 5th year. 0/year

c. the 8th and 10th year. -70/yr

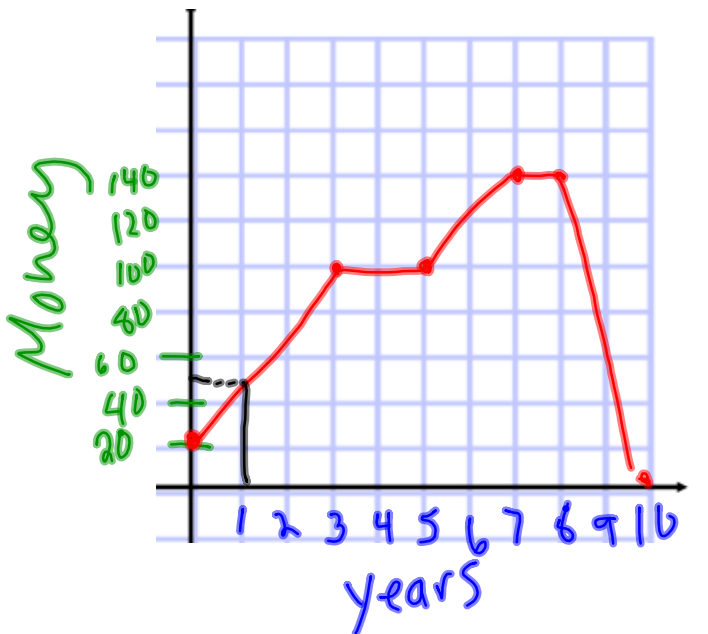
$$\frac{\text{money}}{\text{time}} = \frac{\$80}{3\text{yrs}} = \frac{\$26.67}{1\text{yr}}$$

$$= \frac{\text{money}}{\text{time}} = \frac{\$0}{2\text{yrs}} = \frac{\$0}{\text{yr}}$$

$$= \frac{\text{money}}{\text{time}} = \frac{\$-140}{2\text{yrs}} = \frac{\$-70}{\text{yr}}$$

10. Between which consecutive years was the rate of change the greatest? *come right after each other* $\frac{0-1}{2-3}$ or $\frac{1-2}{2-3}$

11. What is the average annual rate of change between year 1 and 10? *1 yr* $-\$5.11/\text{yr}$



$$\frac{\$46}{9} = \frac{\$5.11}{1 \text{ year}}$$

Assign 7-1
1, 5-11, 14-25