

Constant Rate of Change

Lesson 1.7

I. Use a Table

DIRECTIONS: Find the unit rate to determine the constant rate of change.

- The table shows the amount of money a booster club makes washing cars for a fundraiser. Use the information to find the constant rate of change in dollars per car.

Cars Washed	
Number	Money (\$)
5	40
10	80
15	120
20	160

Handwritten annotations: $+5$ between rows in the 'Number' column and $+40$ between rows in the 'Money (\$)' column.



Look for a pattern!

$$\frac{\text{change in } \underline{\text{money}}}{\text{change in } \underline{\text{cars}}} = \frac{40 \text{ dollars}}{5 \text{ cars}}$$

The money earned increases by \$40 for every 5 cars.

$$\frac{40 \text{ dollars}}{5 \text{ cars}} \div 5 \rightarrow \frac{8 \text{ dollars}}{1 \text{ car}}$$

Write as a unit rate.

So, the number of dollars earned increases by \$ 8 for every car washed.

Examples

DIRECTIONS: Find the unit rate to determine the constant rate of change. Highlight and underline important information.

1. The table shows the number of miles a plane traveled while in flight. Use the information to find the approximate constant rate of change in miles per minute.

Time (min)	30	60	90	120
Distance (mi)	290	580	870	1,160

$+30$ $+30$ $+30$

 $+290$ $+290$ $+290$

$$\frac{\text{Change in distance}}{\text{Change in time}} = \frac{290 \text{ mi} \div 30}{30 \text{ mins} \div 30} = \frac{9.\bar{6} \text{ mi}}{1 \text{ min}}$$

$\approx 10 \text{ mi/min}$

2. The table shows the number of students that buses can transport. Use the table to find the constant rate of change in students per school bus.

Number of Buses	2	3	4	5
Number of Students	144	216	288	360

$+1$ $+1$ $+1$

 $+72$ $+72$ $+72$

$$\frac{\text{Change in students}}{\text{Change in buses}} = \frac{72 \text{ students}}{1 \text{ bus}}$$