

Name Key

**\* Do Now \***

**1 EXPLORE** Comparing a Table and a Graph

The table and graph show how many words Morgan and Brian typed correctly on a typing test. For both students, the relationship between words typed correctly and time is linear.

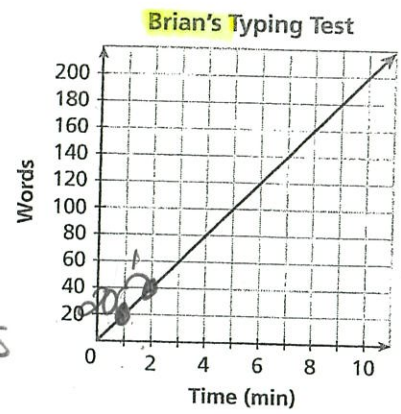
$(2,30)$   $(4,60)$   
 $m = \frac{y_2 - y_1}{x_2 - x_1}$

$m = \frac{60 - 30}{4 - 2}$

$m = \frac{30 \text{ words}}{2 \text{ min.}}$

$m = 15$

Morgan's Typing Test					
Time (min)	2	4	6	8	10
Words	30	60	90	120	150



$\frac{\text{rise}}{\text{run}} = \frac{20}{1}$   
20

A Find Morgan's rate of change.  
15 words per minutes

Find Brian's rate of change.  
20 words per minute

c Compare the rate of change of the two graphs.  
Brian's rate of change is greater than Morgan's by 5 words per minute.

$\frac{20}{-15}$   
5

**2 EXPLORE** Comparing a Table and an Equation

Josh and Maggie buy MP3 files from different music download services. With both services, the monthly charge is a linear function of the number of songs downloaded. The cost at Josh's service is described by  $y = 0.50x + 10$  where  $y$  is the cost in dollars and  $x$  is the number of songs downloaded.

$(5, 4.95)$   $(10, 9.90)$   
 $x_1, y_1$   $x_2, y_2$

$m = \frac{y_2 - y_1}{x_2 - x_1}$

$m = \frac{9.90 - 4.95}{10 - 5}$

$m = \frac{4.95}{5}$   $m = 0.99$

Cost of MP3s at Maggie's Music Service					
Songs, $x$	5	10	15	20	25
Cost (\$), $y$	4.95	9.90	14.85	19.80	24.75

A Find the rate of change of each function.

$y = 0.50x + 10$   
 Josh: 50¢ per song downloaded

Maggie: 99¢ per song downloaded

B Which function has the greater rate of change? What does that mean in this context?

Maggie has a greater rate of change than Josh by 49¢ per song. Maggie's cost per song is more expensive.

$\frac{99}{-50}$   
-49