Algebra 2 2.3

Find rate of change

Determine slope of a line

ordered pair

rate of change

slope

constant same all the time

$m = \frac{\text{rise}}{\text{run}}$ ← + −

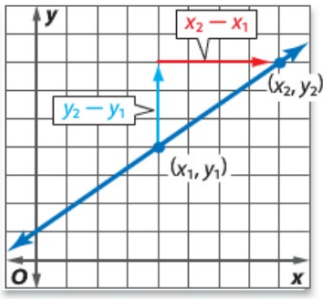
to right

Quiz 2.1-2.2

activ: whiteboards

2 Slope

The **slope** of a line is the ratio of the change in the y-coordinates to the corresponding change in the x-coordinates. The slope of a line is the same as its rate of change.



Suppose a line passes through points at (x_1, y_1) and (x_2, y_2).

$$\text{Slope} = \frac{\text{change in } y\text{-coordinates}}{\text{change in } x\text{-coordinates}} = \frac{y_2 - y_1}{x_2 - x_1}$$

CCSS REGULARITY Find the rate of change for each set of data.

1.

Time (min)	2	4	6	8	10
Distance (ft)	12	24	36	48	60

whiteboards

2	12
10	60

$$\frac{60-12}{10-2} = \frac{48}{8} = \frac{6}{1} = 6$$

Find the slope of the line that passes through each pair of points.

4. (3, 2), (8, 12)

5. (−1, 4), (3, −8)

6. (−2, −5), (−7, 10)

m (slope)

Determine the rate of change for each equation.

23. $6y = 8x - 40$

24. $-2y - 16x = 41$

$+16x \quad +16x$

$$\frac{-2y}{-2} = \frac{16x}{-2} + \frac{41}{-2}$$

$$y = -8x - \frac{41}{2}$$

26. $20x + 85y = 120$

27. $\frac{3}{2}x - \frac{5}{4}y = 15$

Find the value of r so that the line that passes through each pair of points has the given slope.

31. $(6, r), (3, 3), m = 2$

32. $(8, 1), (5, r), m = \frac{1}{3}$

$3 = 2 \cdot 3 + B$

$3 = 6 + B$

$-6 \quad -6$

$-3 = B$

$y = 2x - 3$

$y = 2 \cdot 6 - 3$

$y = 9$

1. Write the equation from m and (x,y)
2. Answer the question

Connect 4
(if time)

parallel (same slope)

//

perpendicular ($\perp$) ($m_1 m_2 = -1$)

opp & recip.

$\frac{2}{3}$ $-\frac{3}{2}$

WB 2.3 prac.

Vertical

$m = \frac{6}{0} = \frac{2}{0} = \frac{5}{0}$ = undefined

x = constant

$x = 6$

Horiz.

$m = 0$

y = constant