

Name : Key

Slope Between Two Points

For 1-6 find the slope between two points using the formula shown below. Show all of your work & reduce.

$$\text{Slope } m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{\text{Change in } y\text{'s}}{\text{Change in } x\text{'s}} = \frac{\Delta y\text{'s}}{\Delta x\text{'s}}$$

1. (10, 3) & (7, 9) #1: -2

$$m = \frac{3 - 9}{10 - 7} = \frac{-6}{3} = -2$$

2. (4, -2) & (4, 3) #2: No Slope or Undefined

$$m = \frac{-2 - 3}{4 - 4} = \frac{-5}{0} = \text{N.S.}$$

3. (2, 10) & (8, 7) #3: $-\frac{1}{2} = \frac{1}{-2} = -\frac{1}{2}$

$$m = \frac{10 - 7}{2 - 8} = \frac{3}{-6} = -\frac{1}{2}$$

4. (7, 3) & (8, 5) #4: 2

$$m = \frac{3 - 5}{7 - 8} = \frac{-2}{-1} = 2$$

5. (12, 11) & (9, 5) #5: 2

$$m = \frac{11 - 5}{12 - 9} = \frac{6}{3} = 2$$

6. (6, -2) & (3, -2) #6: zero

$$m = \frac{-2 - -2}{6 - 3} = \frac{0}{3} = 0$$

Find the slope between two points and then write an equation in Slope-Intercept Form ($y = mx + b$).

Example: $(5, -1)$ & $(-10, -7)$

Step 1: Find the slope using the formula $m = \frac{y_2 - y_1}{x_2 - x_1}$

$$m = \frac{-1 - (-7)}{5 - (-10)} = \frac{6}{15} = \frac{2}{5}$$

Step 2: Pick one of the points: $(5, -1)$

Step 3: Use the Slope you found in Step 1 and the point in Step 2 to substitute the values into $y = mx + b$ and then solve for b .

$$(-1) = \left(\frac{2}{5}\right)(5) + b$$

$$-1 = 2 + b$$

$$-3 = b$$

Step 4: Write your answer in Slope-Intercept Form $y = \boxed{\frac{2}{5}}x + \boxed{-3}$

For 7-12, find the slope between two points and then write an equation in Slope-Intercept Form ($y = mx + b$). Show all of your work & reduce.

7. $(-5, -9)$ & $(3, 7)$

$$\frac{-9 - 7}{-5 - 3} = \frac{-16}{-8} = 2$$

$$7 = 2(3) + b$$

$$7 = 6 + b$$

$$b = 1$$

$$\#7: \underline{y = 2x + 1}$$

8. $(6, -2)$ & $(-3, -5)$

$$\frac{-2 - (-5)}{6 - (-3)} = \frac{3}{9} = \frac{1}{3}$$

$$-5 = \frac{1}{3}(-3) + b$$

$$-5 = -1 + b$$

$$b = -4$$

$$\#8: \underline{y = \frac{1}{3}x - 4}$$

9. (1, 7) & (-7, -41)

$$\frac{7 - (-41)}{1 - (-7)} = \frac{48}{8} = 6$$

$$7 = 6(1) + b$$

$$7 = 6 + b$$

$$b = 1$$

#9: $y = 6x + 1$

10. (5, -16) & (-3, 8)

$$\frac{-16 - 8}{5 - (-3)} = \frac{-24}{8} = -3$$

#10: $y = -3x + -1$

$$8 = -3(-3) + b$$

$$8 = 9 + b$$

$$b = -1$$

11. (8, 1.25) & (-4, -1.75)

$$\frac{1.25 - (-1.75)}{8 - (-4)} = \frac{3}{12} = \frac{1}{4}$$

#11: $y = \frac{1}{4}x + -\frac{3}{4}$

$$1.25 = \frac{1}{4}(8) + b$$

$$1.25 = 2 + b$$

$$b = -\frac{3}{4}$$

12. (1, 8) & (-9, -2)

$$\frac{8 - (-2)}{1 - (-9)} = \frac{10}{10} = 1$$

#12: $y = x + 7$

$$8 = 1(1) + b$$

$$8 = 1 + b$$

$$b = 7$$