

U10-3 Finding Slope from 2 Points

Slope (m)

We use the letter m for slope. It comes from the French word "monter" which means "to climb".

$$\text{Slope } (m) = \frac{\text{difference in } y}{\text{difference in } x}$$

$$\text{Slope } (m) = \frac{\text{RISE}}{\text{RUN}}$$

$$m = \frac{\text{vertical change}}{\text{horizontal change}}$$

4 Types of slope

| 4 Types of slope | | | | |
|------------------|--|--|--|--|
| Type | | | | |
| Picture | | | | |
| Fraction | | | | |

There are two ways to find the slope of a line that passes through 2 given points.

Ex: Find the slope of the line that passes through the points below:

(5, 7) & (10, 1)

| Method 1 | Method 2 | | | | | | |
|---|---|---|---|---|----|---|---|
| <p>Make a table and find the change in y and the change in x.</p> $m = \frac{\text{change in } y}{\text{change in } x} = \frac{\Delta y}{\Delta x}$ | <p>Use the slope formula.</p> $m = \frac{y_2 - y_1}{x_2 - x_1}$ | | | | | | |
| (5, 7) & (10, 1) | (5, 7) & (10, 1) | | | | | | |
| <table style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <tr> <td style="border-right: 1px solid black; padding: 5px; text-align: center;">x</td> <td style="padding: 5px; text-align: center;">y</td> </tr> <tr> <td style="border-right: 1px solid black; padding: 5px; text-align: center; color: red;">5</td> <td style="padding: 5px; text-align: center; color: red;">7</td> </tr> <tr> <td style="border-right: 1px solid black; padding: 5px; text-align: center; color: blue;">10</td> <td style="padding: 5px; text-align: center; color: blue;">1</td> </tr> </table> $m = \frac{\Delta y}{\Delta x} = \text{-----}$ | x | y | 5 | 7 | 10 | 1 | <ol style="list-style-type: none"> 1) Label the first point x_1, y_1. $x_1 = \quad y_1 =$ 2) Label the second point x_2, y_2. $x_2 = \quad y_2 =$ 3) Substitute them in to the slope formula: $m = \frac{y_2 - y_1}{x_2 - x_1}$ |
| x | y | | | | | | |
| 5 | 7 | | | | | | |
| 10 | 1 | | | | | | |

Use either method (table or formula) to find the slope of the line that passes through the given points. Circle if the slope is positive, negative, zero or undefined. **SHOW ALL WORK!**

| | | |
|---|--|---|
| 1) (19, 3) & (20, 3) Positive/negative/zero/undefined | 2) (-5, 3) and (-1,0) Positive/negative/zero/undefined | 3) (4, 6) & (4, 9) Positive/negative/zero/undefined |
| 4) (12,5) and (9,8) Positive/negative/zero/undefined | 5) (6,2) and (6,-5) Positive/negative/zero/undefined | 6) (-3,-7) and (-8, -1) Positive/negative/zero/undefined |
| 7) (3,-5) and (0,0) Positive/negative/zero/undefined | 8) (2,-5) and (7,-5) Positive/negative/zero/undefined | 9) (19, -16) & (-7, -15) Positive/negative/zero/undefined |

Einstein Level:

| | | |
|--|--|--|
| 10) Make a set of ordered pairs that have a positive slope. | 11) Make a set of ordered pairs that have a negative slope. | 12) Make a set of ordered pairs that have a negative slope. |
| 13) Make a set of ordered pairs that have a negative slope. | 14) The slope of a line is $m = \frac{7}{5}$. The points the line passes through are (5, 4) & (10, y_2). What is y_2 ? | 15) The slope of a line is $m = \frac{7}{5}$. The points the line passes through are (-3, 8) & (x_2 , 15). What is x_2 ? |

