

Find an equation

line $\frac{y-1}{x-2} = \frac{3-1}{4-2}$

3. Find the equation and graph for each line described below.

a. Parallel to $y = 2x + 3$ and passing through $(-1, 5)$

parallel to $y = 2x + 3$ \rightarrow slope $m = 2$
point $(-1, 5)$
 $y - 5 = 2(x + 1)$
 $y - 5 = 2x + 2$
 $y = 2x + 7$

Q2

line $y = 2x + 7$

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b. Find the equation and graph of the line that passes through the points $(-1, 5)$ and $(2, 1)$

parallel to $y = 2x + 3$ \rightarrow slope $m = 2$
point $(-1, 5)$
 $y - 5 = 2(x + 1)$
 $y - 5 = 2x + 2$
 $y = 2x + 7$

Q3

line $y = 2x + 7$

line $y = 2x + 7$

line $y = 2x + 7$

line $y = 2x + 7$

4. Answer the following

a. What does the slope of a line represent?

the steepness of the line. It is the ratio of the vertical change to the horizontal change.

b. What does the y-intercept of a line represent?

the point where the line crosses the y-axis.

c. How do you find the equation of a line given the slope and y-intercept?

Use the slope-intercept form $y = mx + b$, where m is the slope and b is the y-intercept.

d. How do you find the equation of a line given two points?

Find the slope using the formula $m = \frac{y_2 - y_1}{x_2 - x_1}$, then use the point-slope form $y - y_1 = m(x - x_1)$ to find the equation.

Handwritten notes and diagrams illustrating the relationship between slope, y-intercept, and the equation of a line. It includes several examples of lines and their equations, such as $y = 2x + 7$ and $y = -\frac{1}{2}x + 3$, and shows how to derive them from given information. There are also some diagrams showing lines on a coordinate plane.