

3.6: 11 Lines in the ^{2 3/5} coordinate plane

Objective: Find slopes of lines and use slope to identify 11 lines in a coordinate plane

Write equations of 11 lines in a coordinate plane

Warm-up: State whether the slope is +, -, 0, or und

- 1) Rises left to right
- 2) vertical
- 3) horizontal
- 4) Falls left to right

Finding the slope of 11 lines

$$\text{Slope} = \frac{\text{rise}}{\text{run}} \text{ or } \frac{y_2 - y_1}{x_2 - x_1}$$

Find the slope of the line that passes through (3, -3) and (0, 9)

$$\frac{9 - (-3)}{0 - 3} = \frac{12}{-3} = -4$$

Now try:

$$(4, 2) (6, 8) \quad / \quad (-3, -1) (-5, -11) \quad / \quad (-8, 12) (0, -12) \quad / \quad (8, 3) (14, 5) \quad /$$

Postulate 17 Slopes of 11 Lines

In a coordinate plane, two non-vertical lines are 11 iff they have the same slope

Identifying 11 Lines

Are 11 lines with coordinate points (-7, 2) (5, 1) and (-7, -2) (5, -1) 11?

Now try: (-3, 1) (3, 4) and (0, -5) (2, -4)

Writing Equations of 11 Lines

$$y = mx + b$$

↑ ↑
slope y-int

line n_1 has an equation of $y = -\frac{1}{3}x - 1$
line n_2 is 11 and goes through (3, 2). What is the equation of n_2 ?

Now try: 1) $y = x - 12$ through $(10, 3)$ / 2) $y = -x - 9$ through $(-5, 2)$
 3) $y = \frac{2}{3}x - 2$ through $(1, 2)$

Closure: what is an equation of a line? How do we find the slope? How can we determine if lines are \parallel ?

Homework: 3.6B

$\frac{3}{-6}$ and $\frac{-1}{2}$