

# Lesson 3.6: Parallel Lines via Equations

## Targets:

1. I understand how to use equations to determine if lines are parallel.

## Warm Up

Use the rectangle in the graph to answer the following questions.

1. Fill in the blank: Segment AB is \_\_\_\_\_ to segment DC.

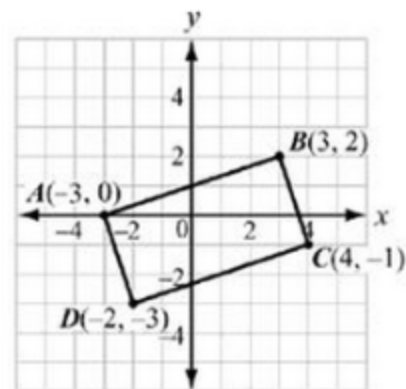
2. Write an equation for line AB.                      3. Write an equation for line DC.

4. What do you notice about the slopes of each line?

5. Fill in the blank: Segment AD is \_\_\_\_\_ to segment BC.

6. Write an equation for line AD.                      7. Write an equation for line BC.

8. What do you notice about the slopes of each line?



## Vocab: Parallel Lines

1. What does parallel mean?

1. How can you use equations of lines to determine if they are parallel?

## Practice 2

The equation of two lines is given for each problem. Determine whether the lines are parallel, perpendicular or neither and explain your answer.

1.  $y = 2x - 15$

$y = 2x + 34$

2.  $y = \frac{3}{2}x + 5$

$y = -\frac{2}{3}x + 3$

3.  $y = \frac{1}{5}x - 3$

$y = -\frac{1}{5}x + 2$

4.  $y = -3x + 4$

$y = \frac{1}{3}x + 4$

5.  $y = 1.5x + \frac{3}{5}$

$y = -5.1x - \frac{5}{3}$

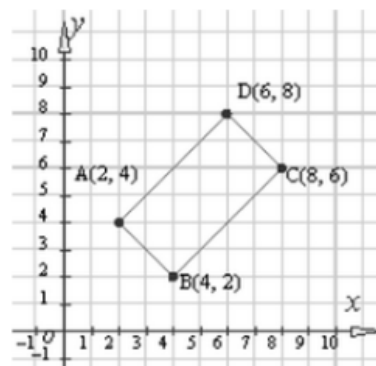
6.  $y = \frac{3}{5}x - 22$

$y = \frac{3}{5}x + 44$

### Practice 3

Given: Point A is (2, 4), B is (4, 2), C is (8, 6), and D is (6, 8)

Prove: Figure ABCD is a rectangle



### Practice 4

For each problem there is an equation of a line given. You need to write a second equation for a line that would be parallel to given lines.

1.  $y = \frac{4}{3}x - 5$

2.  $y = x + 3$

3.  $y = -5x - 8$

### Exit Ticket

1. How do you use equations to determine if lines are parallel?

1. Use the graph to follow the next set of questions

a. What is the equation of the line given?

a. Graph another line that is parallel to the line given.

a. What is the equation of the line you graphed?

