Topic 7:
Writing Equations of Parallel Lines

Script 1

Writing Equations of Parallel Lines with Marco and Janell

What is the equation of the line that is parallel to the line with the equation $y = \frac{3}{4}x - 6$ and passes through the point (4, 8) written in slope-intercept form?

MARCO
The instructions say to write the equation of the line that is parallel to the line with the equation *y* equals three fourths times *x* minus six and passes through the point four, eight.

JANELL
Written in slope-intercept form.

MARCO
We should use the point-slope formula because we're given a point and the slope.

JANELL
They didn't give us the slope.

MARCO
But the equation is given is the slope-intercept form, *y* equals *m* times *x* plus *b* where *m* is the slope of the line. So *m* equals three-fourths.

JANELL
And parallel lines have equal slopes.

MARCO
So the point-slope formula is *y* minus *y* one equals *m* times the difference, *x* minus *x* one.

JANELL
Okay then. We'll let four equal *x* one and eight equal *y* one.

MARCO
And *m* equals three-fourths.

JANELL
When we plug everything into the formula, that gives us *y* minus eight equals three-fourths times *x* minus four.

MARCO
Now we distribute the three-fourths.

JANELL
That makes *y* minus eight equals three-fourths times *x* minus…what's three-fourths times four?

MARCO
Well, you turn four into a fraction by putting it over one. So that's three-fourths times four over one. Then you multiply the numerators and multiply the denominators.

JANELL
So that's going to be three times four is
twelve over four times one is four.

MARCO
And twelve divided by four is three.

JANELL
Okay then, we have *y* minus eight equals
three fourths times *x* minus three.

MARCO
Now we just have to get rid of the eight on the left side
by adding eight to both sides of the equation.

JANELL
The eights cancel on the left and negative three plus eight equals
five. So the final answer is *y* equals three-fourths *x* plus five.

MARCO
Give me a high five.