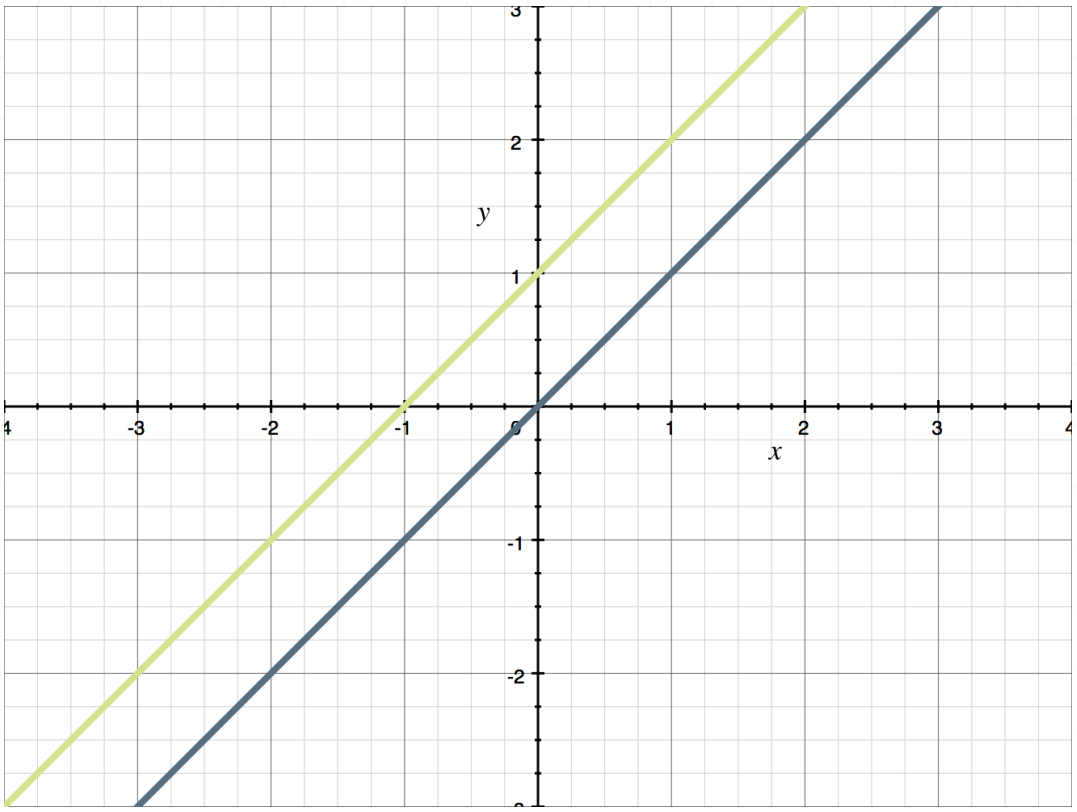
**Topic**: Parallel and perpendicular lines

**Question**: What can we say about the slopes of these lines?




**Answer choices**:

A The slopes are negative reciprocals of each other

B The slopes are $0$

C The slopes are equal

D The slopes are $2$

**Solution**: C

Since the lines are parallel, we know that the slopes are equal.

**Topic**: Parallel and perpendicular lines

**Question**: Which line is parallel to the given line?

$$y = x + 3$$

**Answer choices**:

A $y = 2x + 3$

B $y = -2x + 3$

C $y = -x + 3$

D $y = x + 4$

**Solution**: D

For two lines to be parallel, their slopes must be equal.

Remember that the equation of a line in slope-intercept form is given by

$$y = mx + b$$

where $m$ is the slope and $b$ is the $y$-intercept.

We can rewrite the given equation ($y = x + 3$) as

$$y = 1x + 3$$

and conclude that the slope of the line is $1$.

The only answer choice that represents a line with a slope of $1$ is answer choice D.

$$y = x + 4$$

$$y = 1x + 4$$

**Topic**: Parallel and perpendicular lines

**Question**: Which line is perpendicular to the given line?

$$y = 2x + 3$$

**Answer choices**:

A $y = 2x - 3$

B $y = -2x + 3$

C $y = -\frac{1}{2}x + 3$

D $y = 2x + 4$

**Solution**: C

For two lines to be perpendicular, their slopes must be negative reciprocals of each other.

Remember that the equation of a line in slope-intercept form is given by

$$y = mx + b$$

where $m$ is the slope and $b$ is the $y$-intercept.

From the given equation ($y = 2x + 3$), we can see that the slope of the given line is $2$.

The negative reciprocal of $2$ is $-1/2$. Therefore, any line which is perpendicular to the given line has a slope of $-1/2$.

The only answer choice that represents a line with a slope of $-1/2$ is answer choice C.

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