Focus Standards:	8.EE.B.5	Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways. *For example, compare a distance-time graph to a distance-time equation to determine which of two moving objects has greater speed.*
	8.EE.B.6	Use similar triangles to explain why the slope m is the same between any two distinct points on a non-vertical line in the coordinate plane; derive the equation for a line through the origin and the equation for a line intercepting the vertical axis at .

Student Outcomes

- Students know that any non-vertical line is the graph of a linear equation in the form of $y = mx + b$, where b is a constant.
- Students write the linear equation whose graph is a given line.

Classwork

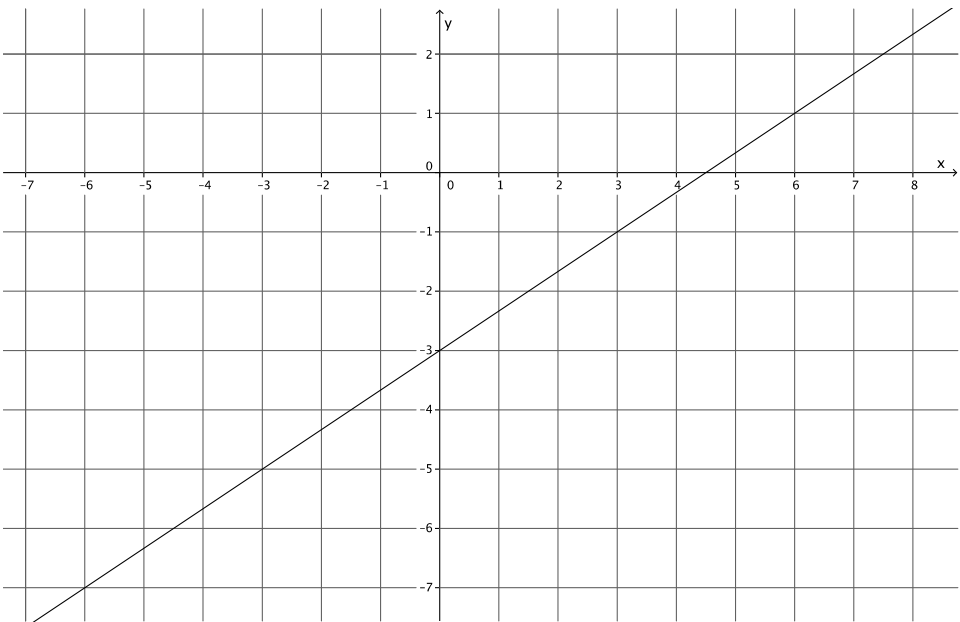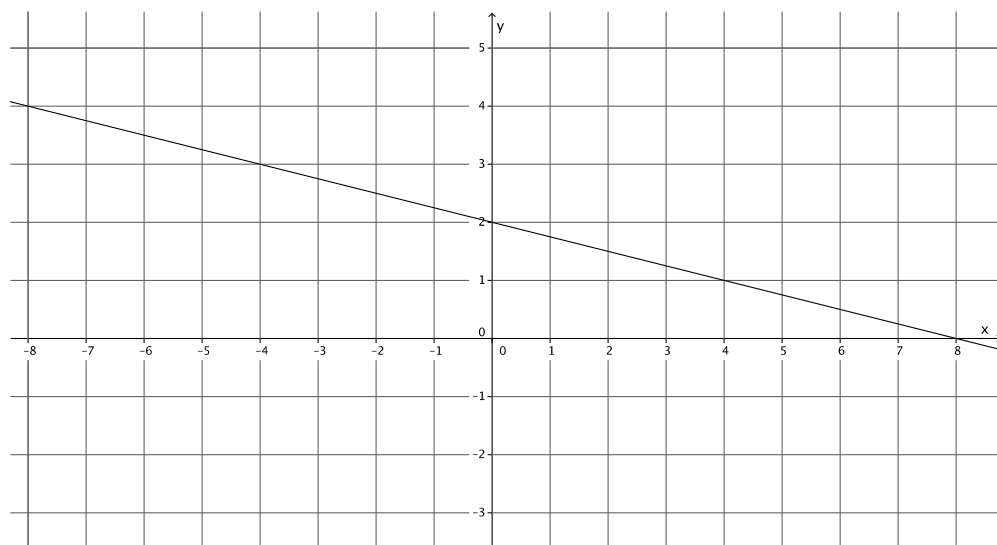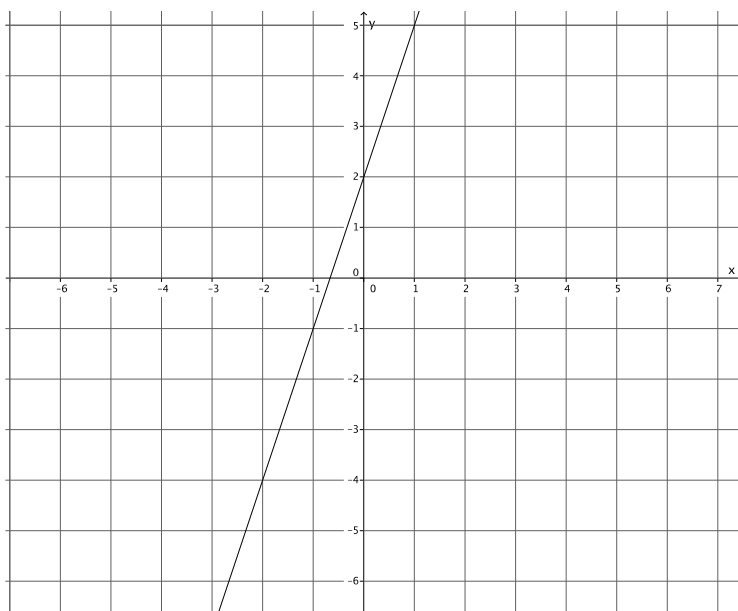### Opening Exercise

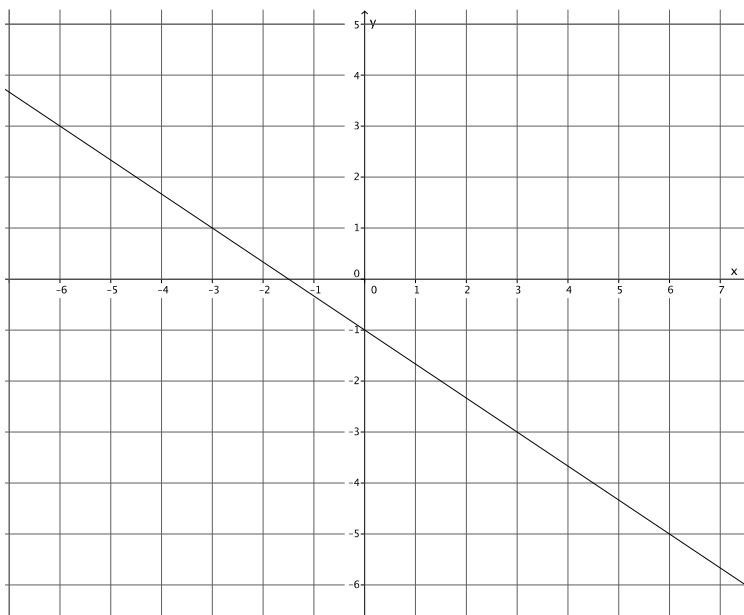Figure 1

Figure 2

Exercises

1. Write the equation that represents the line shown.

   Use the properties of equality to change the equation from slope-intercept form, $y = mx + b$, to standard form,
   $ax + by = c$, where a, b, and c are integers, and a is not negative.
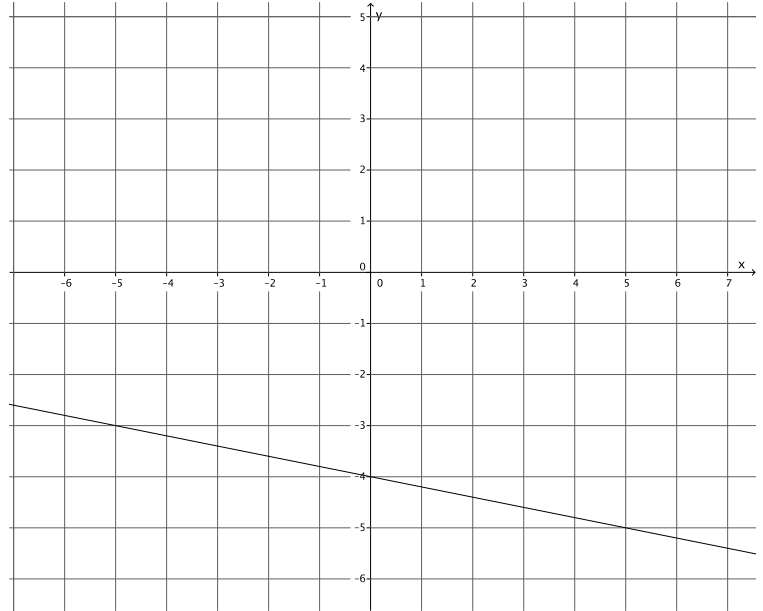
2. Write the equation that represents the line shown.

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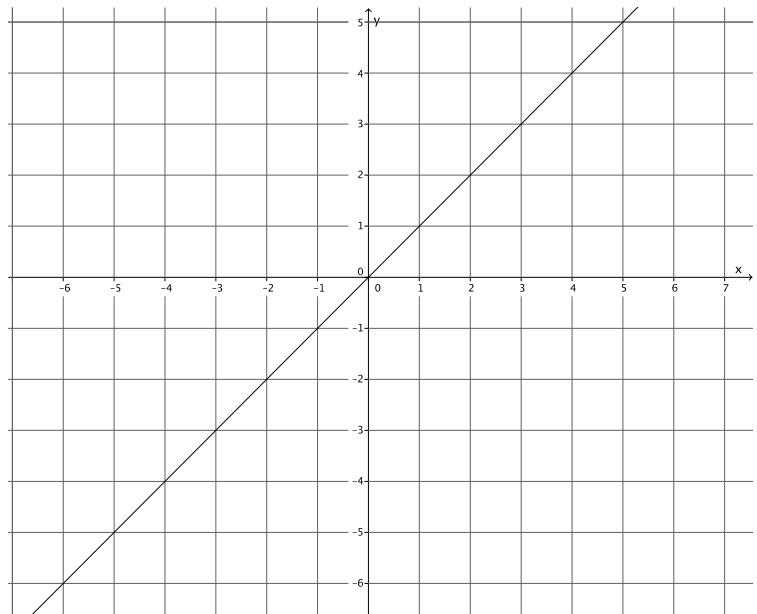
3. Write the equation that represents the line shown.

    Use the properties of equality to change the equation from slope-intercept form, $y = mx + b$, to standard form,
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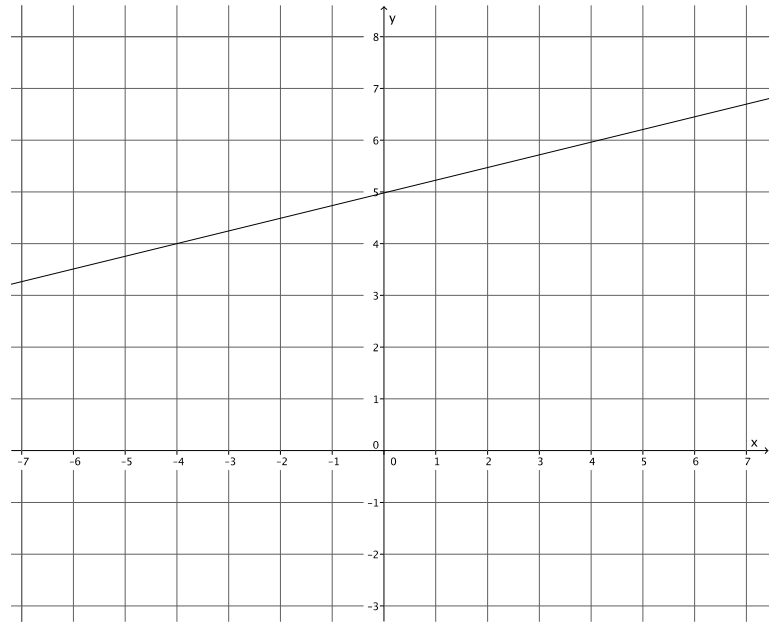
4. Write the equation that represents the line shown.

    Use the properties of equality to change the equation from slope-intercept form, $y = mx + b$, to standard form,
    $ax + by = c$, where a, b, and c are integers, and a is not negative.

5. Write the equation that represents the line shown.

Use the properties of equality to change the equation from slope-intercept form, $y = mx + b$, to standard form,
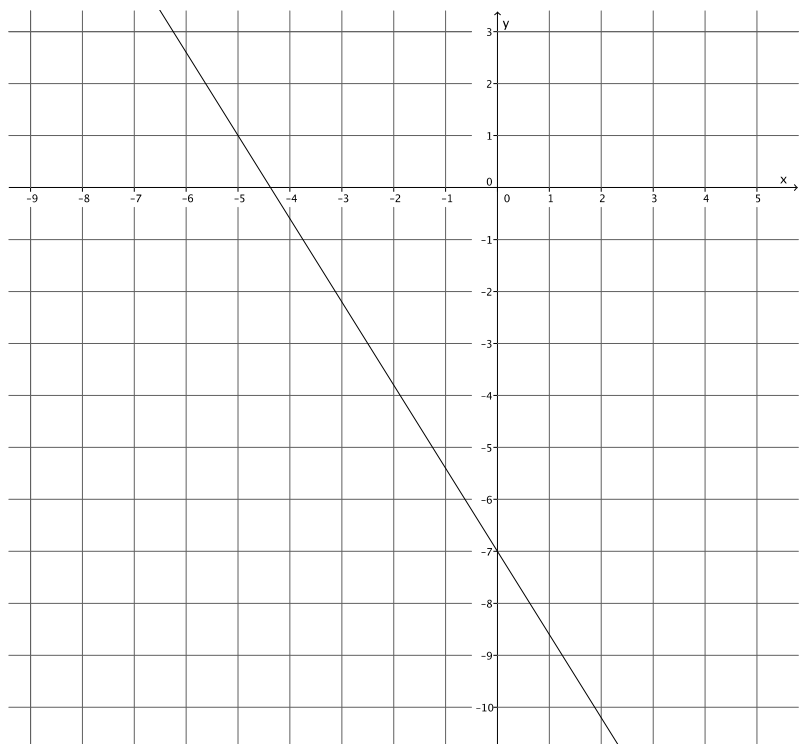$ax + by = c$, where a, b, and c are integers, and a is not negative.

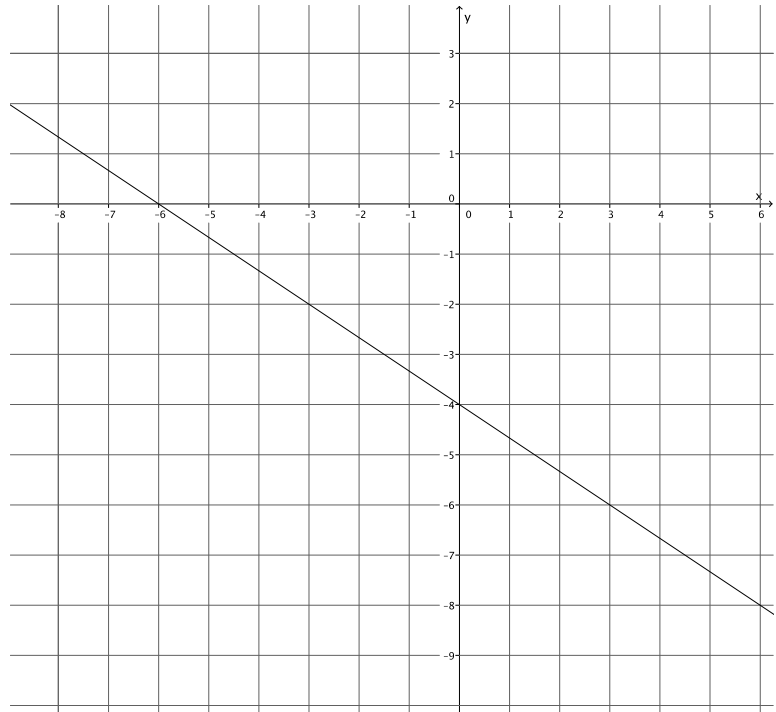6. Write the equation that represents the line shown.

Use the properties of equality to change the equation from slope-intercept form, $y = mx + b$, to standard form, $ax + by = c$, where a, b, and c are integers, and a is not negative.

Problem Set

1. Write the equation that represents the line shown.

   Use the properties of equality to change the equation from slope-intercept form, $y = mx + b$, to standard form,

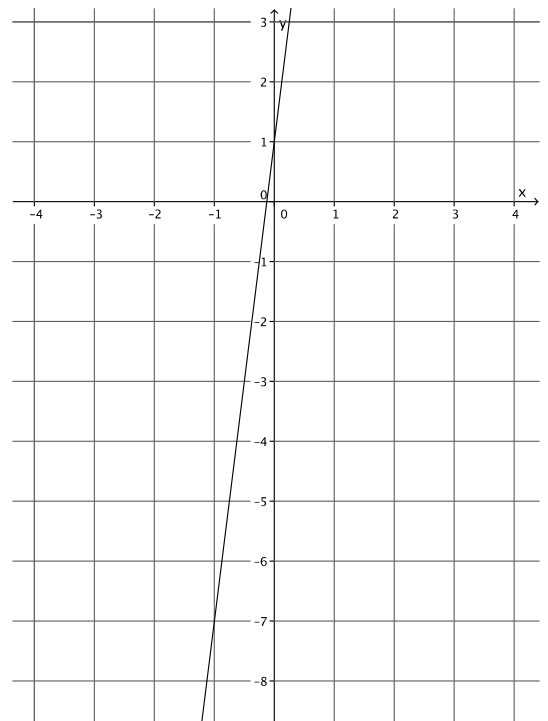 $ax + by = c$, where a, b, and c are integers, and a is not negative.

2. Write the equation that represents the line shown.

   Use the properties of equality to change the equation from slope-intercept form, $y = mx + b$, to standard form, $ax + by = c$, where a, b, and c are integers, and a is not negative.
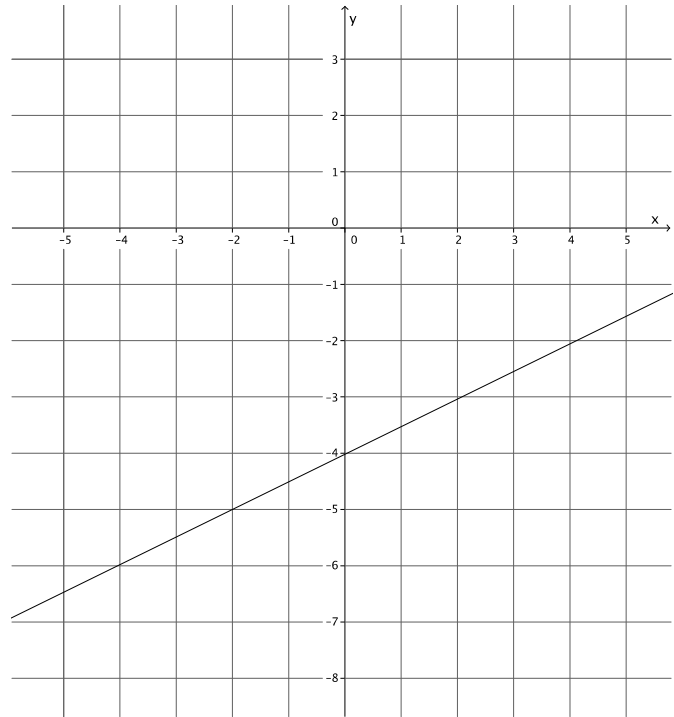
3. Write the equation that represents the line shown.

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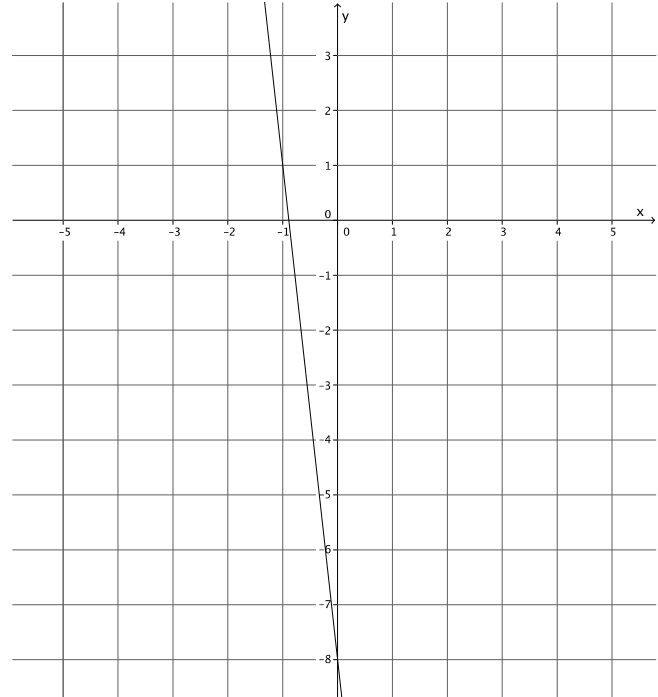

4. Write the equation that represents the line shown.

Use the properties of equality to change the equation from slope-intercept form, $y = mx + b$, to standard form, $ax + by = c$, where a, b, and c are integers, and a is not negative.

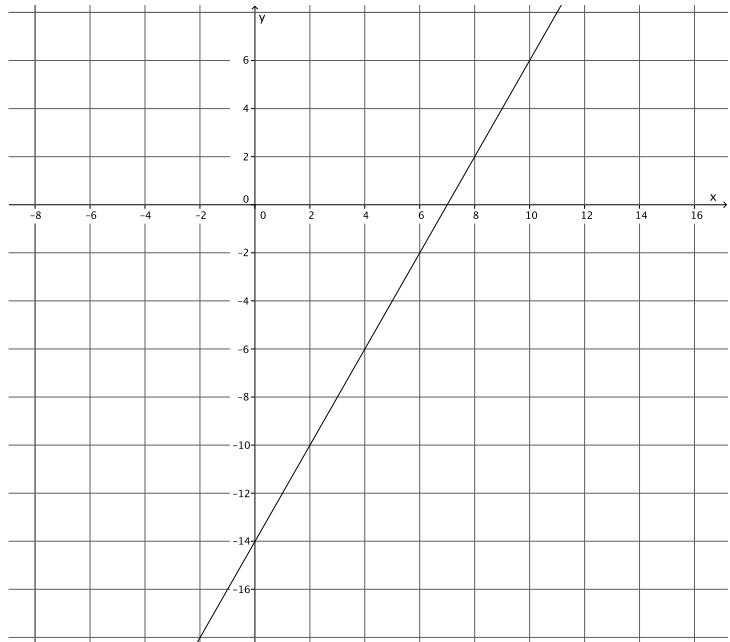5. Write the equation that represents the line shown.

Use the properties of equality to change the equation from slope-intercept form,
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6. Write the equation that represents the line shown.

Use the properties of equality to change the equation from slope-intercept form,
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