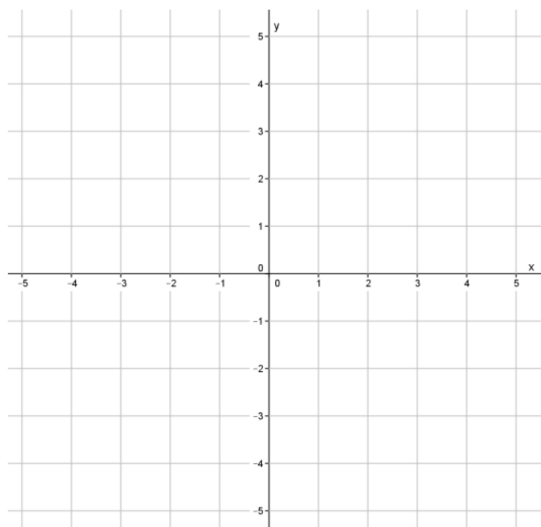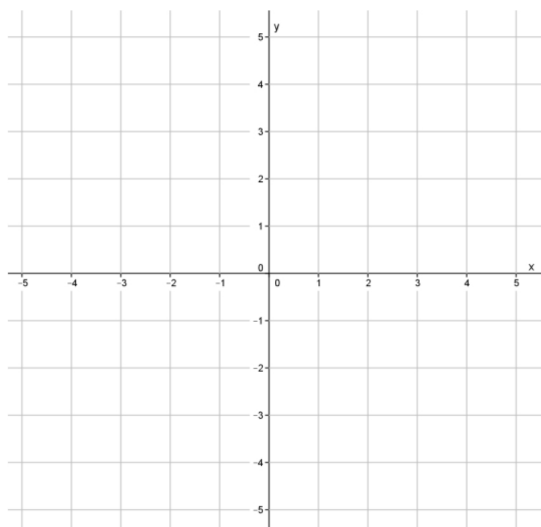Name _____   Date _____

Graph of a Linear Equation—Horizontal and Vertical Lines

1. Graph the linear equation $ax + by = c$, where $a = 0$, $b = 1$, and $c = 1.5$.

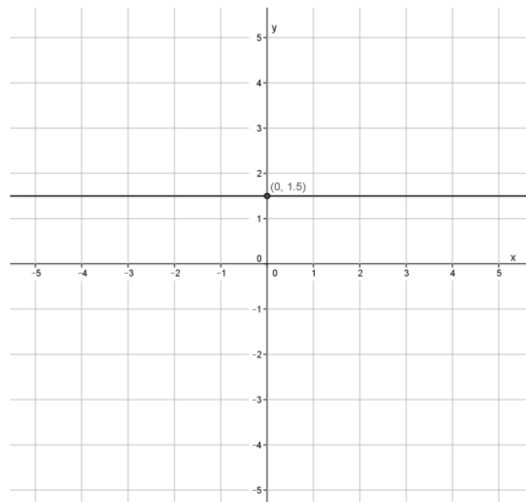2. Graph the linear equation $ax + by = c$, where $a = 1$, $b = 0$, and $c = -\dfrac{5}{2}$.

1. Graph the two-variable linear equation $ax + by = c$, where $a = 0$, $y = 1$, and $c = -4$.

2. Graph the two-variable linear equation $ax + by = c$, where $a = 1$, $y = 0$, and $c = 9$.

3. Graph the linear equation $y = 7$.

4. Graph the linear equation $x = 1$.

5. Explain why the graph of a linear equation in the form of $y = c$ is the horizontal line, parallel to the x-axis passing through the point $(0, c)$.

6. Explain why there is only one line with the equation $y = c$ that passes through the point $(0, c)$.
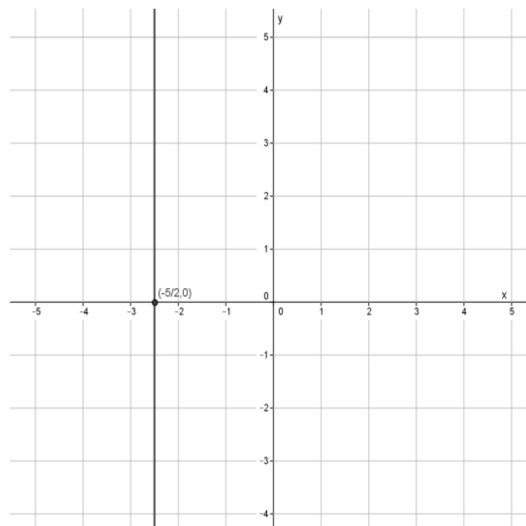
3. What linear equation represents the graph of the line that coincides with the x-axis?

4. What linear equation represents the graph of the line that coincides with the y-axis?

1. Graph the linear equation $ax + by = c$, where $a = 0$, $b = 1$, and $c = 1.5$.

(0, 1.5)

2. Graph the linear equation $ax + by = c$, where $a = 1$, $b = 0$, and $c = -\dfrac{5}{2}$.

(-5/2, 0)

3. What linear equation represents the graph of the line that coincides with the x-axis?
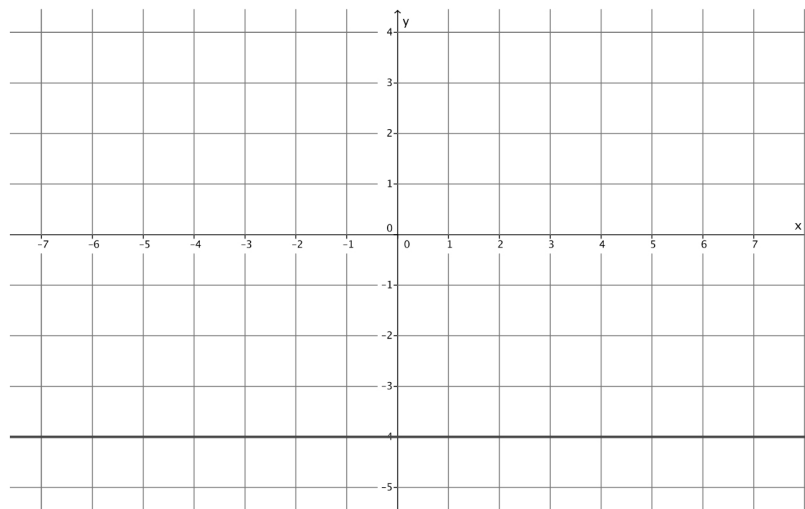
    $y = 0$

4. What linear equation represents the graph of the line that coincides with the y-axis?
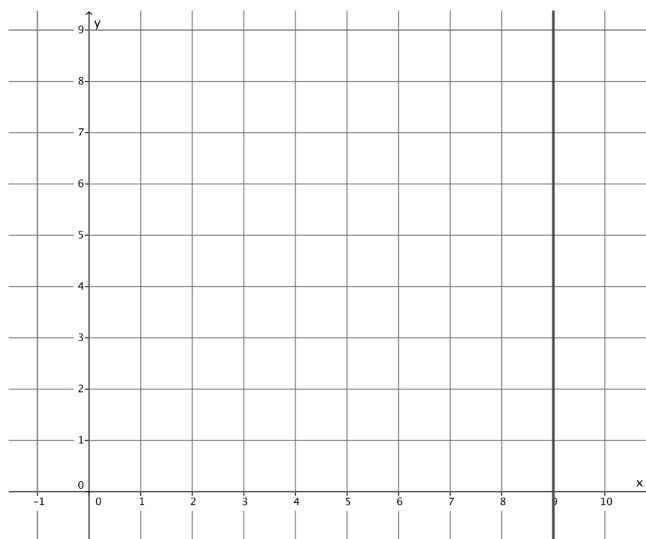
    $x = 0$

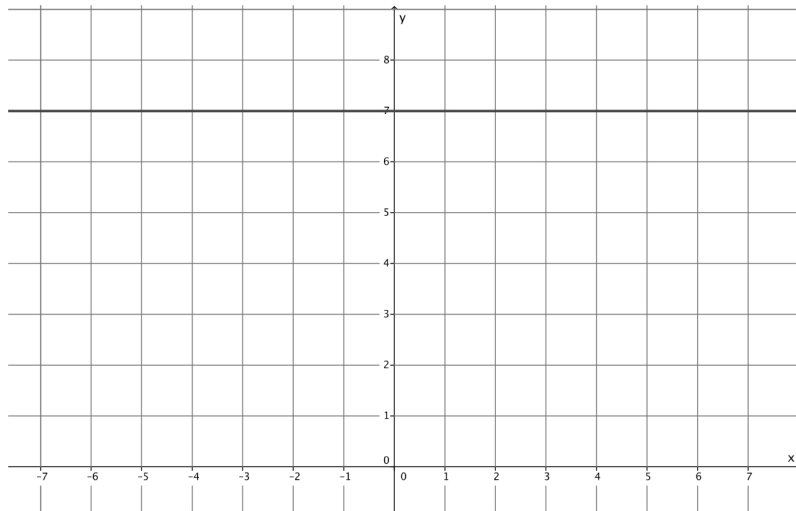Students will need graph paper to complete the Problem Set.

1. Graph the two-variable linear equation $ax + by = c$, where $a = 0$, $y = 1$, and $c = -4$.
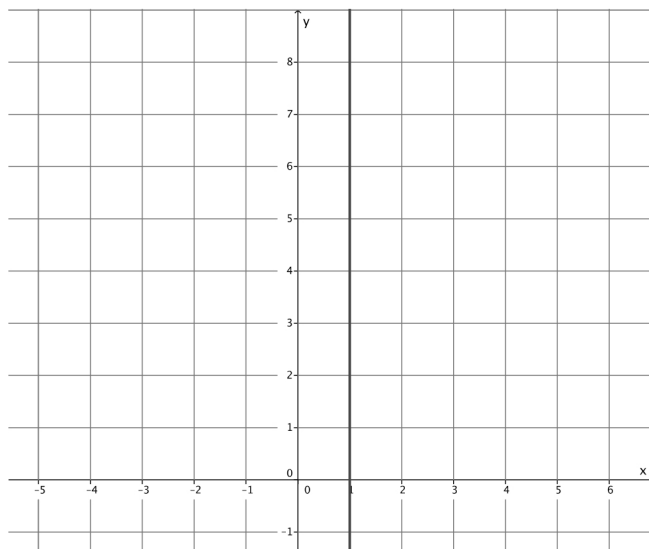

2. Graph the two-variable linear equation $ax + by = c$, where $a = 1$, $y = 0$, and $c = 9$.

3. Graph the linear equation $y = 7$.

4. Graph the linear equation $x = 1$.

5. Explain why the graph of a linear equation in the form of $y = c$ is the horizontal line, parallel to the x-axis passing through the point $(0, c)$.

    The graph of $y = c$ passes through the point $(0, c)$ which means the graph of $y = c$ cannot be parallel to the y-axis because the graph intersects it. For that reason, the graph of $y = c$ must be the horizontal line parallel to the x-axis.

6. Explain why there is only one line with the equation $y = c$ that passes through the point $(0, c)$.

    There can only be one line parallel to another that goes through a given point. Since the graph of $y = c$ is parallel to the x-axis and it goes through the point $(0, c)$, then it must be the only line that does. Therefore, there is only one line that is the graph of the equation $y = c$ that passes through $(0, c)$.