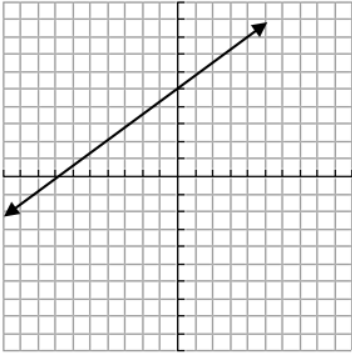
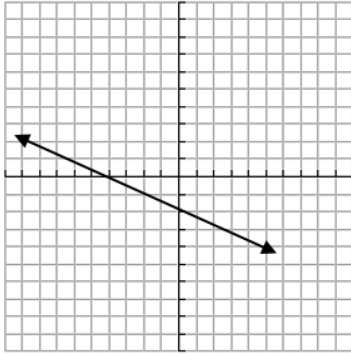
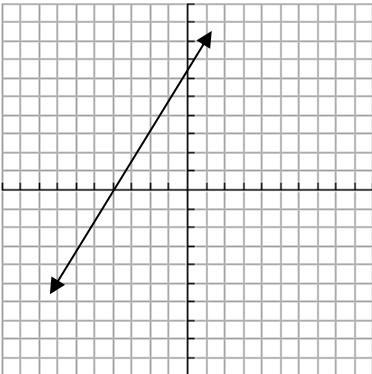
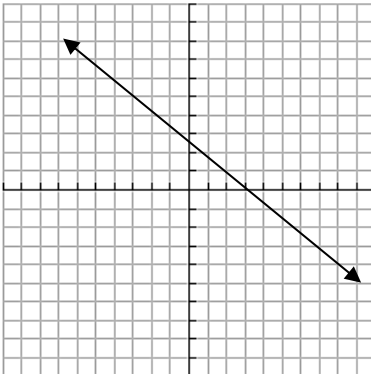
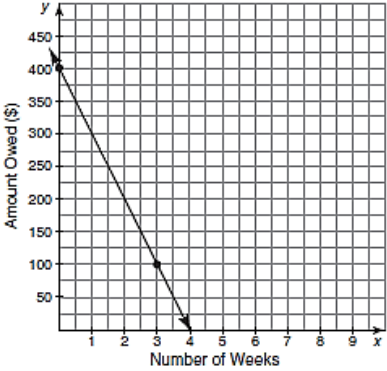


Learning Goal 5.2 – Applications of Linear Functions

What you need to know & be able to do	Things to remember	Examples	
<p>1. Determine the characteristics of linear functions</p> <p>Days 11 & 12</p>	<p>Domain: input, x-values, "left to right"</p> <p>Range – output, y-values, "bottom to top"</p> <p>x-intercept(s): where the graph crosses the x-axis.</p> <p>y-intercept(s): where the graph crosses the y-axis.</p> <p>maximum/minimum: the highest or lowest points.</p> <p>Increase: where the graph looks like it's going "up hill".</p> <p>Decrease: where the graph looks like it's going "down hill".</p> <p>Constant: where the graph is horizontal.</p> <p>End Behavior: "left side" $x \rightarrow -\infty$ "right side" $x \rightarrow \infty$</p> <p>What direction do the left and right arrows go?</p>	<p>1. Determine the domain & range of the function.</p>  <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Domain: _____ Range: _____</p> <p>Interval of Increase: _____</p> <p>Interval of Decrease: _____</p> <p>Maximum: _____ Minimum: _____</p> <p>End Behavior: As $x \rightarrow \infty$, $f(x) \rightarrow$ _____ As $x \rightarrow -\infty$, $f(x) \rightarrow$ _____</p> <p>Zeros: _____ X-Intercept: _____ Y-Intercept: _____</p> </div>	<p>2. Determine the domain & range of the function.</p>  <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Domain: _____ Range: _____</p> <p>Interval of Increase: _____</p> <p>Interval of Decrease: _____</p> <p>Maximum: _____ Minimum: _____</p> <p>End Behavior: As $x \rightarrow \infty$, $f(x) \rightarrow$ _____ As $x \rightarrow -\infty$, $f(x) \rightarrow$ _____</p> <p>Zeros: _____ X-Intercept: _____ Y-Intercept: _____</p> </div>
<p>2. Determine where the graph is positive and negative</p> <p>Day 12</p>	<p>For what x-values is the graph in the positive (above x-axis) region and in the negative (below x-axis) region?</p>	<p>3. Give the inequality for the parts of the graph that are positive and negative.</p>  <p>Positive: _____</p> <p>Negative: _____</p>	<p>4. Give the inequality for the parts of the graph that are positive and negative.</p>  <p>Positive: _____</p> <p>Negative: _____</p>

<p>3. Characteristics of functions without a graph.</p> <p>Day 11 & 12</p>	<p>X-intercept: $(a, 0)$ Y-intercept $(0, b)$</p>	<p>5. Which functions have an interval of increase? How do you know?</p> <p>A. $f(x) = 2x - 5$ B. $f(x) = -\frac{1}{2}x + 4$ C. $f(x) = -3x - 1$ D. $f(x) = 3x + 9$</p>	<p>6. What are the x and y intercepts for the equation $3x - 6y = 24$?</p>										
<p>4. Characteristics in the Real World</p> <p>Day 13</p>	<p>Domain: x- values Range: y-values X-intercept: $(a, 0)$ Y-intercept $(0, b)$ Slope: Change in y over change in x</p>	<p>7. Calculate the slope and y-intercept. Interpret them in terms of the problem scenario.</p> <table border="1" data-bbox="594 520 967 821"> <thead> <tr> <th>Number of Balloons</th> <th>Total Cost of Balloons (in Dollars)</th> </tr> </thead> <tbody> <tr> <td>2</td> <td>6</td> </tr> <tr> <td>4</td> <td>12</td> </tr> <tr> <td>6</td> <td>18</td> </tr> <tr> <td>8</td> <td>24</td> </tr> </tbody> </table> <p>9. Which domain would be the most appropriate set to use for a function that relates x amount of people in a house to the total number y amount of household devices?</p> <p>A. Set of Whole Numbers B. Set of Integers C. Set of Rational Numbers D. Set of Real Numbers</p>	Number of Balloons	Total Cost of Balloons (in Dollars)	2	6	4	12	6	18	8	24	<p>8. Calculate the slope, x-intercept, and y-intercept. Interpret them in terms of the problem scenario.</p> <p style="text-align: center;">Television</p>  <p>10. At an ice cream shop, the profit, $P(c)$, is modeled by the function $P(c) = 0.87c$, where c represents the number of ice cream cones sold. What set of numbers would be appropriate for the domain and range? Explain why.</p> <p>Domain:</p> <p>Range:</p>
Number of Balloons	Total Cost of Balloons (in Dollars)												
2	6												
4	12												
6	18												
8	24												

