

The activities below offer you a chance to reflect about what you have learned during this chapter. As you work, look for concepts that you feel very comfortable with, ideas that you would like to learn more about, and topics you need more help with. Look for connections between ideas as well as connections with material you learned previously.

## 1. TEAM BRAINSTORM

What have you studied in this chapter? What ideas were important in what you learned? With your team, brainstorm a list. Be as detailed as you can. To help get you started, a list of Learning Log entries and Math Notes boxes are below.

What topics, ideas, and words that you learned *before* this course are connected to the new ideas in this chapter? Again, be as detailed as you can.

How long can you make your list? Challenge yourselves. Be prepared to share your team's ideas with the class.

### Learning Log Entries

- [Lesson 1.1.3](#) – Domain and Range
- [Lesson 1.2.2](#) – Function Investigation Questions
- [Lesson 1.2.3](#) – Recognizing Linear Relationships



### Math Notes

- [Lesson 1.1.1](#) – Functions
- [Lesson 1.1.2](#) – Linear Equations
- [Lesson 1.1.3](#) – Domain and Range
- [Lesson 1.1.4](#) – Solving a Quadratic Equation
- [Lesson 1.2.1](#) – Triangle Trigonometry
- [Lesson 1.2.2](#) – Graphs With Asymptotes

## 2. MAKING CONNECTIONS

The following is a list of the vocabulary used in this chapter. Make sure that you are familiar with all of these words and know what they mean. Refer to the glossary or index for any words that you do not yet understand.

asymptote

equation

dependent variable domain

function

graph

independent variable

investigating a function

output

x -> y table

infinity

situation

range

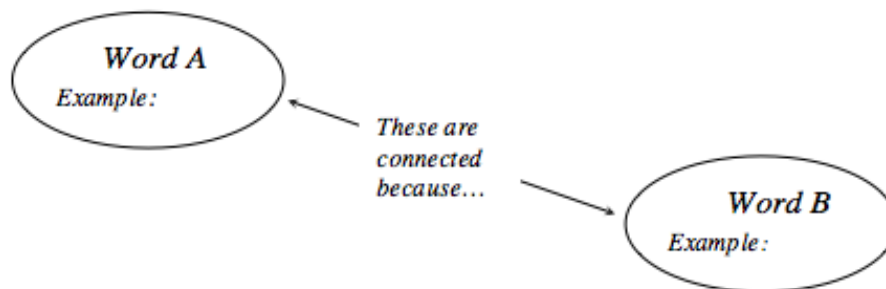
y-intercept

input

symmetry

*x-intercept*

Make a concept map showing all of the connections you can find among the key words and ideas listed above. To show a connection between two words, draw a line between them and explain the connection, as shown in the model below. A word can be connected to any other word as long as you can justify the connection. For each key word or idea, provide an example or sketch that shows the idea.



Your teacher may provide you with vocabulary cards to help you get started. If you use the cards to plan your concept map, be sure either to re-draw your concept map on your paper or to attach the vocabulary cards to a poster with all of the connections explained for others to see and understand.

While you are making your map, your team may think of related words or ideas that are not listed above. Be sure to include these ideas on your concept map.

### 3. PORTFOLIO: EVIDENCE OF MATHEMATICAL PROFICIENCY

Your teacher may have instructed you to take a photograph of the poster you made for Lesson 1.1.2 as evidence of your early understanding about describing functions. If so, include the photograph in your portfolio.



Explain everything you know about  $y = x^2 - 4$  and  $y = \sqrt{x + 4}$ .

Your teacher may give you the [Chapter 1 Closure Resource Page](#): Function Investigations Graphic Organizer page to work on (or you can download this from [www.cpm.org](http://www.cpm.org)). A Graphic Organizer is a tool you can use to organize your thoughts and communicate your ideas clearly.

### 4. WHAT HAVE I LEARNED

Most of the problems in this section represent typical problems found in this chapter. They serve as a gauge for you. You can use them to determine which types of problems you can do well and which types of problems

require further study and practice. Even if your teacher does not assign this section, it is a good idea to try these problems and find out for yourself what you know and what you still need to work on.

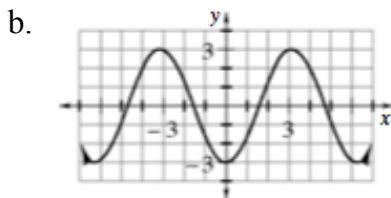
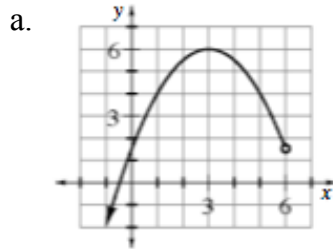
Solve each problem as completely as you can. The table at the end of the closure section has answers to these problems. It also tells you where you can find additional help and practice with problems like these.



**CL 1-119.** Given the functions  $f(x) = \sqrt{x+4}$  and  $g(x) = x^2 - x$ , find the value of each expression below.

- $f(5)$
- $g(-1)$
- $x$  if  $f(x) = 10$
- $x$  if  $g(x) = 6$

**CL 1-120.** Describe the domain and range for each function shown below.



**CL 1-121.** For each pair of equations below, determine where the graphs intersect.

- $y = 3x + 15$   
 $y = 3 - 3x$
- $y = x^2 - 3x - 8$   
 $y = 2$

**CL 1-122.** Graph the function  $f(x) = x^2 - 2x - 8$ . Identify the domain and range and identify any special points such as the intercepts and vertex.

**CL 1-123.** Graph each equation below and find the  $x$ - and  $y$ -intercepts.

- $y = -\frac{3}{2}x + 8$

b.  $2x - 3y = -6$

**CL 1-124.** Find an equation for each line described below.

- The line that passes through the point (2, 8) and has a slope of  $-5$ .
- The line that passes through the points  $(-3, 4)$  and  $(5, -4)$ .
- The line that passes through the points  $(-2, 4)$  and  $(4, -5)$ .

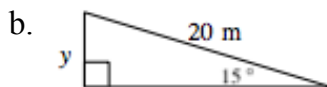
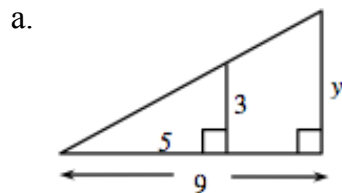
**CL 1-125.** Solve each equation below.

a.  $\frac{x+2}{5} = \frac{10-2x}{3}$

b.  $\frac{3}{x} - 1 = 8$

c.  $x^2 + 3x = 18$

**CL 1-126.** Solve for  $y$ .



**CL 1-127.** Micah was given \$200 for his birthday. Each week he spends \$15 on comic books. In how many weeks will his birthday money be gone?

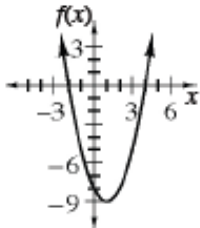
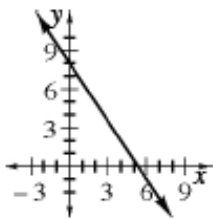
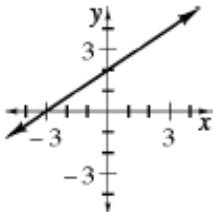
Create multiple representations ( $x \rightarrow y$  table, graph, and equation) for the relationship between the weeks since Micah's birthday and how much money he has left. How does each representation show the solution to the problem?

**CL 1-128.** Check your answers using the table at the end of this section. Which problems do you feel confident about? Which problems were hard? Have you worked on problems like these in math classes you have taken before? Use the table to make a list of topics with which you need help and a list of topics you need to practice more.

## Answers and Support for Closure Activity #4

### *What Have I Learned?*

Note: MN = Math Note, LL = Learning Log

Problem	Solutions	Need Help?	More Practice
CL 1-119.	a. 3 b. 2 c. $x = 96$ d. $x = -2$ or 3	Lesson <a href="#">1.1.1</a>  MN: <a href="#">1.1.1</a>	Problems <a href="#">1-4</a> , <a href="#">1-5</a> , <a href="#">1-17</a> , <a href="#">1-21</a> , and <a href="#">1-35</a>
CL 1-120.	a. Domain: $-\infty < x < 6$ Range: $-\infty < y \leq 6$ b. Domain: all real numbers Range: $-3 \leq y \leq 3$	Lesson <a href="#">1.1.3</a>  MN: <a href="#">1.1.3</a>  LL: <a href="#">1.1.3</a>	Problems <a href="#">1-34</a> , <a href="#">1-35</a> , <a href="#">1-62</a> , <a href="#">1-68</a> , and <a href="#">1-86</a>
CL 1-121	a. $(-2, 9)$ b. $(5, 2)$ , $(-2, 2)$	Lesson <a href="#">1.1.4</a>  MN: <a href="#">1.1.4</a>	Problems <a href="#">1-46</a> , <a href="#">1-69</a> , <a href="#">1-71</a> , <a href="#">1-84</a> , <a href="#">1-87</a> , and <a href="#">1-93</a>
CL 1-122.	 <p>Domain: all real numbers Range: <math>y \geq -9</math> Intercepts: <math>(-2, 0)</math>, <math>(4, 0)</math>, and <math>(0, -8)</math> Vertex: <math>(1, -9)</math></p>	Lessons <a href="#">1.2.2</a> and <a href="#">1.2.4</a>  MN: <a href="#">1.1.3</a>  LL: <a href="#">1.2.2</a>	Problems <a href="#">1-20</a> , <a href="#">1-59</a> , <a href="#">1-90</a> , and <a href="#">1-95</a>
CL 1-123.	 <p>a. Intercepts: <math>(5\frac{1}{3}, 0)</math> and <math>(0, 8)</math></p>  <p>b. Intercepts: <math>(-3, 0)</math> and <math>(0, 2)</math></p>	MN: <a href="#">1.1.2</a>	Problems <a href="#">1-7</a> , <a href="#">1-61</a> , <a href="#">1-66</a> , and <a href="#">1-104</a>
CL 1-124.	a. $y = -5x + 18$ b. $y = -x + 1$ c. $y = -\frac{3}{2}x + 1$	MN: <a href="#">1.1.2</a>	Problem <a href="#">1-15</a> , <a href="#">1-49</a> , <a href="#">1-74</a> , and <a href="#">1-105</a>

CL 1-125.	<p>a. <math>x = \frac{44}{13}</math></p> <p>b. <math>x = \frac{1}{3}</math></p> <p>c. <math>x = -6</math> or <math>3</math></p>	Explanations and practice of topics from previous courses are available in the <i>Core Connections Algebra Parent Guide with Extra Practice</i> , available free at <a href="http://www.cpm.org">www.cpm.org</a> .	Problems <a href="#">1-36</a> , <a href="#">1-48</a> , <a href="#">1-52</a> , <a href="#">1-63</a> , <a href="#">1-64</a> , <a href="#">1-70</a> , <a href="#">1-85</a> , and <a href="#">1-106</a>														
CL 1-126.	<p>a. <math>y = \frac{27}{5} = 5.4</math></p> <p>b. <math>y \approx 5.18</math></p>	MN: <a href="#">1.2.1</a>	Problems <a href="#">1-24</a> , <a href="#">1-60</a> , and <a href="#">1-67</a>														
CL 1-127.	<p><math>y = 200 - 15x</math>, where <math>y</math> represents the total amount of money left and <math>x</math> represents the numbers of weeks that have passed</p> <table><thead><tr><th>Week</th><th>\$</th></tr></thead><tbody><tr><td>0</td><td>200</td></tr><tr><td>1</td><td>185</td></tr><tr><td>2</td><td>170</td></tr><tr><td>3</td><td>155</td></tr><tr><td>4</td><td>140</td></tr><tr><td>5</td><td>125</td></tr></tbody></table>	Week	\$	0	200	1	185	2	170	3	155	4	140	5	125	Lesson <a href="#">1.1.2</a>	Problems <a href="#">1-12</a> , <a href="#">1-19</a> , <a href="#">1-39</a> , and <a href="#">1-88</a>
Week	\$																
0	200																
1	185																
2	170																
3	155																
4	140																
5	125																