

Lesson 2.2.1 Assignment

Name:

Date:

Period:

2-31. Draw the graph of $y = 2x^2 + 3x + 1$. [2-31 HW eTool](#) (Desmos) [Homework Help](#) 

a. What are the x- and y-intercepts?

b. Where is the line of symmetry of this parabola? Write its equation.

c. What are the coordinates of the vertex?

2-32. Change one term in the equation in problem 2-31 so that the parabola has only one x-intercept. [Homework Help](#) 

2-33. Simplify each expression. Refer to the Math Notes box in this lesson for help. [Homework Help](#) 

Example: $\sqrt{72}$ can be rewritten as $\sqrt{36} \cdot \sqrt{2}$, or as $\sqrt{9} \cdot \sqrt{8}$ and you still get the same result when you simplify completely. Verify with your calculator that both $6\sqrt{2}$ and $\sqrt{72} \approx 8.485$.

$$\begin{aligned}\sqrt{72} &= \sqrt{9} \cdot \sqrt{8} \\ &= 3 \cdot \sqrt{4} \cdot \sqrt{2} \\ &= 3 \cdot 2 \cdot \sqrt{2} \\ &= 6\sqrt{2}\end{aligned}$$

OR

$$\begin{aligned}\sqrt{72} &= \sqrt{36} \cdot \sqrt{2} \\ &= 6\sqrt{2}\end{aligned}$$

a. $\sqrt{50}$

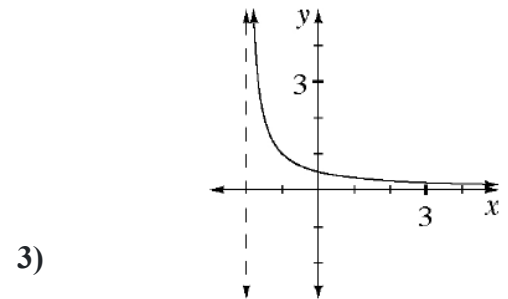
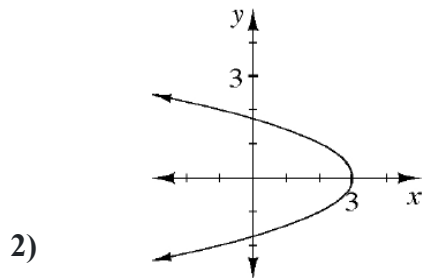
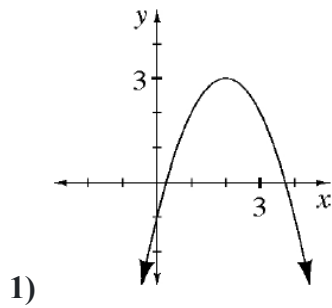
b. $\sqrt{20}$

c. $\sqrt{45}$

2-36. Match each graph below with its domain. Then state the range of each graph.

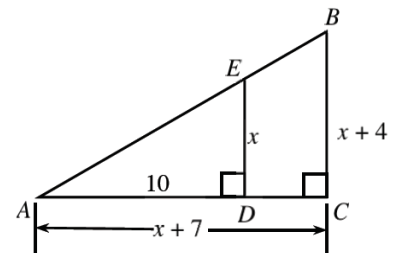
[Homework Help](#)

- a. D: all real numbers
- b. D: $x > -2$
- c. D: $x \leq 3$



2-40. In the diagram at right, $\triangle ABC \sim \triangle AED$. [Homework Help](#)

- a. Solve for x .



- b. Calculate the perimeter of $\triangle AED$.

2-42. Solve for z in each equation. [Homework Help](#) 

a. $2^z = 2^3$	b. $4^z = 8$
c. $3^z = 81^2$	d. $5^{\frac{z+1}{3}} = 25^{\frac{1}{z}}$

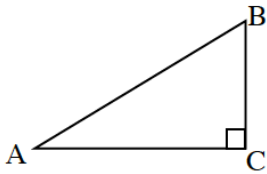
2-45. By mistake, Jim graphed $y = x^3 - 4x$ instead of $y = x^3 - 4x + 6$. What should he do to his graph to get the correct one? [Homework Help](#) 

2-46. Where do the following pairs of lines intersect? [Homework Help](#) 

a. $y = 5x - 2$, $y = 3x + 18$

b. $y = x - 4$, $2x + 3y = 17$

2-47. The right triangle shown at right has a height (BC) of 12.0 cm, and its area is 60.0 square cm. What are $m\angle B$ and the length of the hypotenuse? [Homework Help](#) 



2-50. For each equation, what input value will produce the *smallest* possible output? (In other words, what is the x-value of the *lowest* point on the graph?) What is the input value that gives the *largest* possible output (or the x-value of the *highest* point on the graph)?

[Homework Help](#) 

a. $y = (x - 2)^2$ b. $y = x^2 + 2$ c. $y = (x + 3)^2$ d. $y = -x^2 + 5$

2-49. Solve each equation. Be sure to check each solution using the original equation.

[Homework Help](#) 

a. $(n+4)+n(n+2)+n=0$

b. $\frac{4}{x} = x+3$