

**Student:** JILL WORTKOETTER  
**Date:** 07/20/2008  
**Time:** 5:07:47 PM

**Instructor:** Axia Administrator  
**Course:** MAT/117--06-09-08--section  
ELAA07RG33  
**Book:** Bittinger: Introductory and  
Intermediate Algebra, 3e

**Assignment:** Week 8 CheckPoint: Ch 11

1.

Find and label the vertex and the line of symmetry. Graph the function.

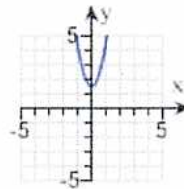
$$f(x) = 3x^2$$

The vertex is .  
(Type an ordered pair.)

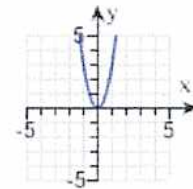
The equation of the line of symmetry is  $x =$  .

Choose the graph that represents  $f(x) = 3x^2$ .

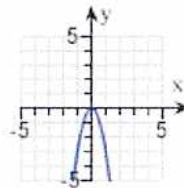
A.



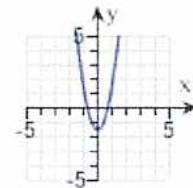
B.



C.



D.



2.

Find and label the vertex and the line of symmetry. Graph the function.

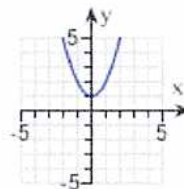
$$f(x) = (x + 1)^2$$

The vertex is .  
(Type an ordered pair.)

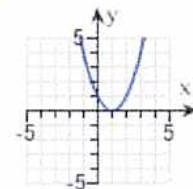
The equation of the line of symmetry is  $x =$  .

Choose the graph that represents  $f(x) = (x + 1)^2$ .

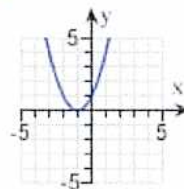
A.



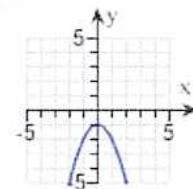
B.



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3.

Find and label the vertex and the line of symmetry. Graph the function.

$$f(x) = (x + 2)^2$$

The vertex is .

(Type an ordered pair.)

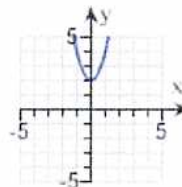
The equation of the line of symmetry is

$x =$ .

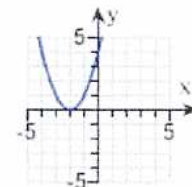
Choose the graph that represents

$$f(x) = (x + 2)^2.$$

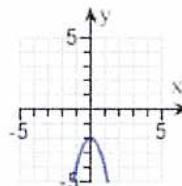
A.



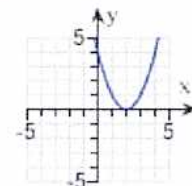
B.



C.



D.



4.

Graph the function. Find the vertex, line of symmetry, and maximum or minimum value.

$$f(x) = (x + 2)^2 - 3$$

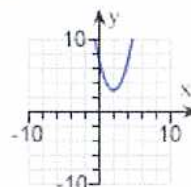
The vertex is .

(Type an ordered pair.)

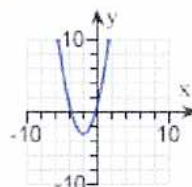
The minimum value is  $f(x) =$ .

Choose the correct graph.

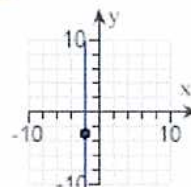
A.



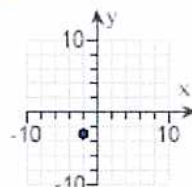
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5.

Find the vertex, the line of symmetry, and the maximum or minimum value of  $f(x)$ .  
Graph the function.

$$f(x) = -3(x + 6)^2 + 5$$

The vertex is .

(Type an ordered pair.)

The line of symmetry is  $x =$  .

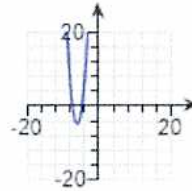
The maximum/minimum value of  $f(x)$  is .

Is the value,  $f(-6) = 5$ , a minimum or a maximum?

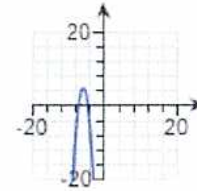
- Minimum  
 Maximum

Choose the correct graph.

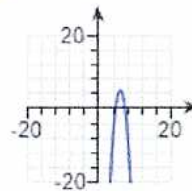
A.



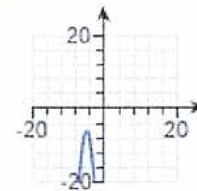
B.



C.



D.



6.

Find the vertex, the line of symmetry, and the maximum or minimum value of  $f(x)$ .  
Graph the function.

$$f(x) = -(x + 6)^2 - 7$$

The vertex is .

(Type an ordered pair.)

The line of symmetry is  $x =$  .

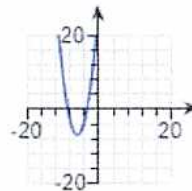
The maximum/minimum value of  $f(x)$  is?

The value,  $f(-6) = -7$ , is?

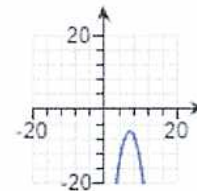
- Minimum  
 Maximum

Choose the correct graph.

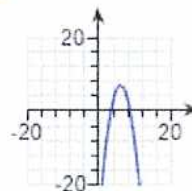
A.



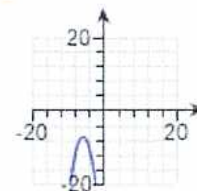
B.



C.



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7.

Find the vertex, the line of symmetry, the maximum or minimum value of the quadratic function, and graph the function on paper.

$$f(x) = x^2 - 12x - 4$$

What is the vertex?

(Type an ordered pair.)

What is the equation of the line of symmetry?

$$x = \text{  }$$

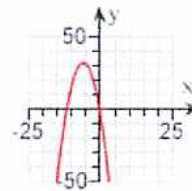
What is the maximum/minimum of  $f(x)$ ?

Is the value,  $f(6) = -40$  a minimum or a maximum?

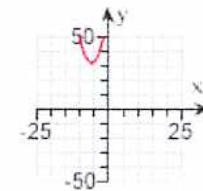
- Minimum  
 Maximum

Choose the graph that represents  $f(x)$ .

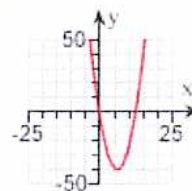
A.



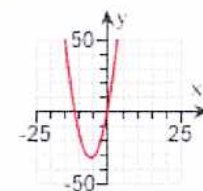
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8.

Find the vertex, the line of symmetry, the maximum or minimum value of the quadratic function, and graph the function.

$$f(x) = -x^2 + 6x + 1$$

The vertex is .

(Type an ordered pair.)

The equation of the line of symmetry is  $x =$  .

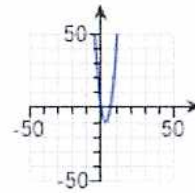
The maximum/minimum of  $f(x)$  is .

The value  $f(3) = 10$  is which of the following?

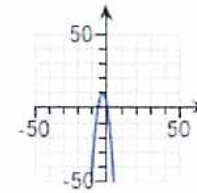
- Minimum  
 Maximum

Choose the correct graph.

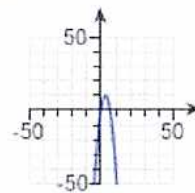
A.



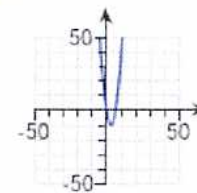
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9.

Find the vertex, the line of symmetry, the maximum or minimum value of the quadratic function, and graph the function.

$$f(x) = -2x^2 + 2x + 8$$

The x-coordinate of the vertex is .  
(Type a simplified fraction.)

The y-coordinate of the vertex is .  
(Type a simplified fraction.)

The equation of the line of symmetry is  $x =$  .  
(Type a simplified fraction.)

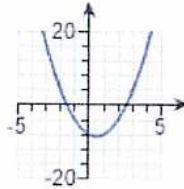
The maximum/minimum of  $f(x)$  is .  
(Type a simplified fraction.)

The value,  $f\left(\frac{1}{2}\right) = \frac{17}{2}$  is?

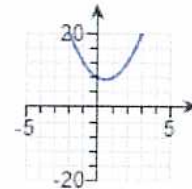
- Minimum  
 Maximum

Choose the correct graph.

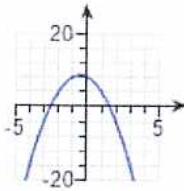
A.



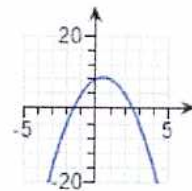
B.



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10.

Find the x-intercepts and y-intercepts.

$$f(x) = -x^2 + 2x + 24$$

The x-coordinates of the intercepts are  $x =$  .  
(Use a comma to separate answers. Type N if there is no intercept.)

The y-intercept is  $(0,$  ).  
(Type N if there is no intercept.)

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11. A carpenter is building a rectangular room with a fixed perimeter of 248 ft. What dimensions would yield the maximum area? What is the maximum area?

The length that would yield the maximum area is  ft.

The width that would yield the maximum area is  ft.

The maximum area is  sq ft.

12. Aki's Bicycle Designs has determined that when  $x$  hundred bicycles are built, the average cost per bicycle is given by  $C(x) = 0.8x^2 - 0.8x + 1.254$ , where  $C(x)$  is in hundreds of dollars. How many bicycles should the shop build to minimize the average cost per bicycle?

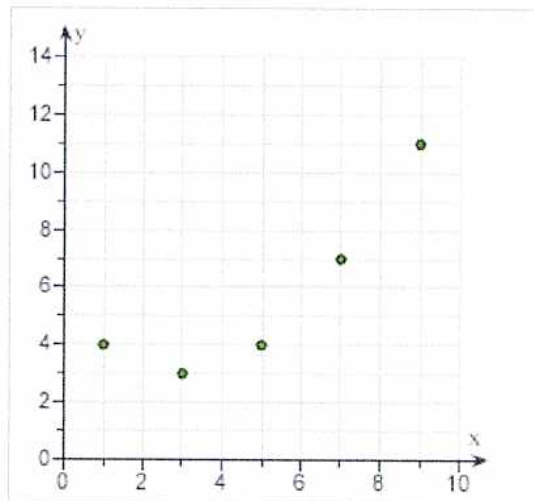
The shop should build  bicycles.

(Round to the nearest integer.)

13. For the scatterplot, determine which of the following types of functions might be used as a model for the data.

Choose the best answer.

- A. not linear or quadratic  
 B. quadratic  
 C. linear



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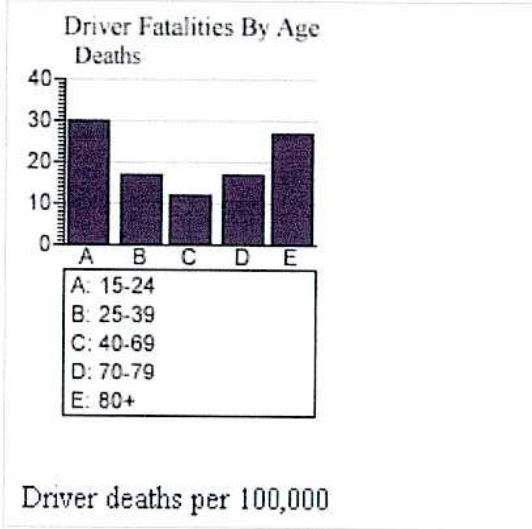
**Assignment:** Week 8 CheckPoint: Ch 11

14.

Which of the following functions might be used as a model for the data in the graph to the right?

- Linear,  $f(x) = mx + b$
- Quadratic,  $f(x) = ax^2 + bx + c, a > 0$
- Quadratic,  $f(x) = ax^2 + bx + c, a < 0$
- Polynomial, not linear or quadratic

- A. Quadratic,  $f(x) = ax^2 + bx + c, a > 0$
- B. Polynomial, not linear or quadratic
- C. Quadratic,  $f(x) = ax^2 + bx + c, a < 0$
- D. Linear,  $f(x) = mx + b$



15.

Find the vertex, the line of symmetry, the maximum or minimum value of the quadratic function, and graph the function.

$$f(x) = 2x^2 - 12x + 17.$$

What is the vertex?

(Type an ordered pair.)

What is the equation of the line of symmetry?

$$x = \text{[ ]}$$

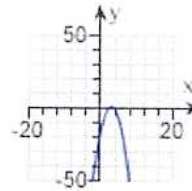
What is the maximum/minimum of  $f(x)$ ?

Is the value,  $f(3) = -1$  a minimum or a maximum?

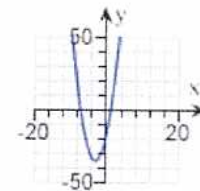
- Maximum
- Minimum

Choose the graph that represents  $f(x)$ .

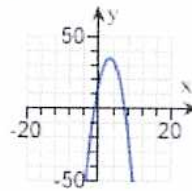
A.



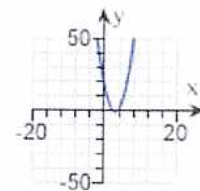
B.



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16.

Find the vertex, the line of symmetry, the maximum or minimum value of the quadratic function, and graph the function.

$$f(x) = 4 - x^2$$

What is the vertex?

(Type an ordered pair.)

What is the equation of the line of symmetry?

$$x = \text{}$$

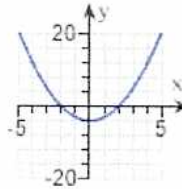
What is the maximum/minimum of  $f(x)$ ?

Is the value,  $f(0) = 4$  a minimum or maximum?

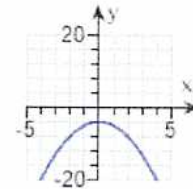
- Minimum  
 Maximum

Choose the graph that represents  $f(x)$ .

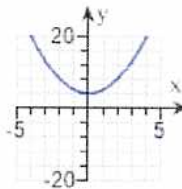
A.



B.



C.



D.

