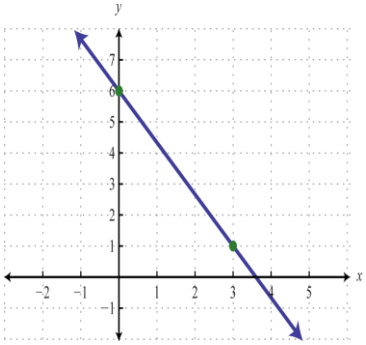
Algebra 1: Unit 7 Practice Test: Graphing Quadratic Functions Name: _____

Identify if the graph is a linear or quadratic function, how do you know? Then write the equation of the function. (For a linear function use slope-intercept form. For a quadratic function use standard form.)

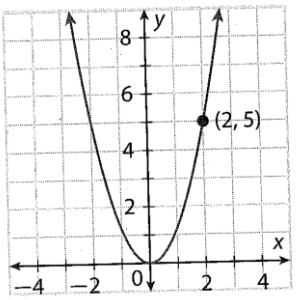
1.



linear or quadratic function, how do you know?

Write the equation of the function:

2.



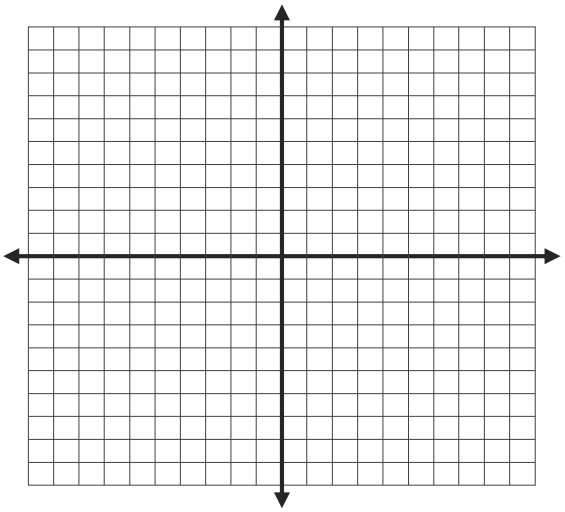
linear or quadratic function, how do you know?

~~Write the equation of the function:~~

For numbers 3-5: Find all the parts and graph the quadratic function in standard, vertex and intercept form.

3. Standard Form: $f(x) = x^2 - 6x + 5$

x	$f(x)$



Direction of opening: Vertex:

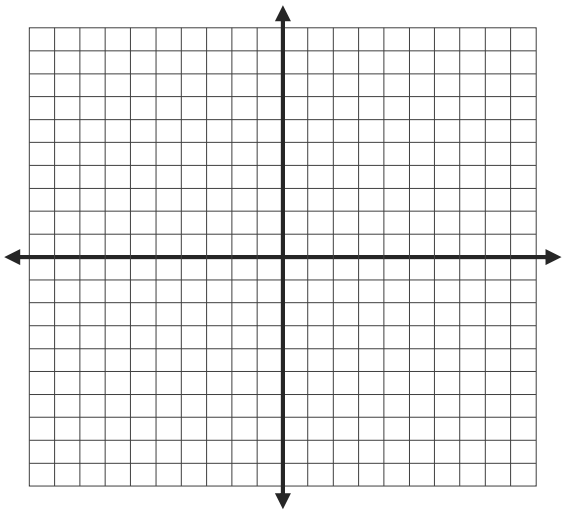
Axis of Symmetry: Maximum/Minimum:

y-intercept: x-intercept(s):

Domain: Range:

4. Vertex Form: $f(x)=\frac{1}{3}(x+6)^2 - 3$

x	$f(x)$



Direction of opening: Vertex:

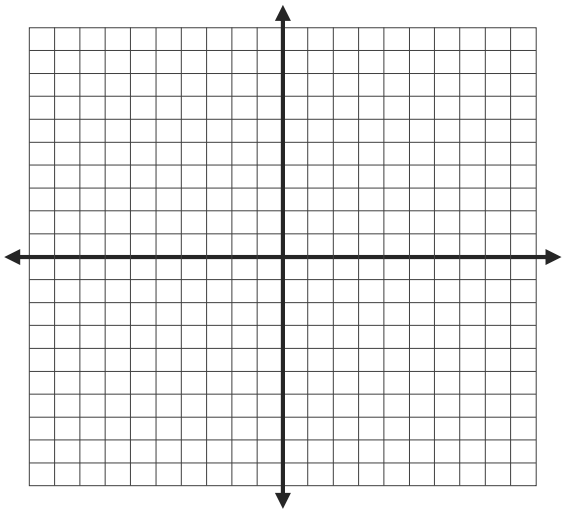
Axis of Symmetry: Maximum/Minimum:

y-intercept: x-intercept(s):

Domain: Range:

5. Intercept Form: $f(x)=-2(x+1)(x-3)$

x	$f(x)$



Direction of opening: Vertex:

Axis of Symmetry: Maximum/Minimum:

y-intercept: x-intercept(s):

Domain: Range:

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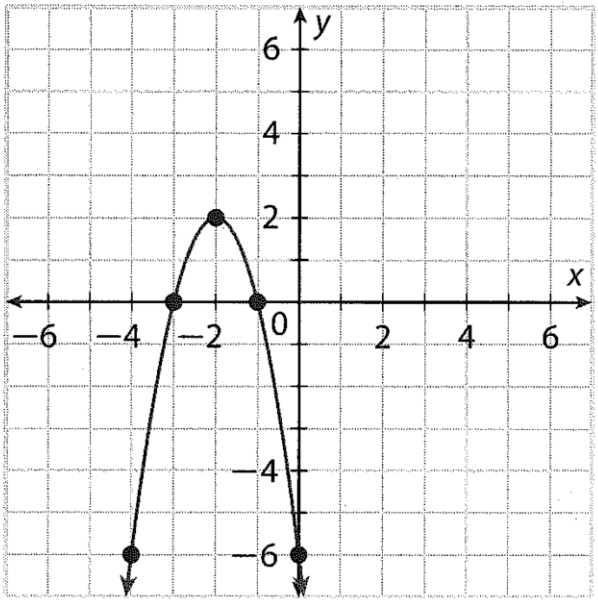
Use the graph of the parabola below to answer the following questions.

a) Does the parabola have a minimum or a maximum? Find the maximum or minimum.

b) What is the parabola's axis of symmetry?

d) Write the parabola in **Vertex Form:**



). What is the y-intercept for the graph?

e) Write the parabola in **Standard Form:**

g). Describe the transformations necessary to get from the graph of the parent function, $f(x) = x^2$ to the graph above.

f) Write the parabola in **Intercept Form:**

Football Task

7. The football team kicker was asked to participate in a demonstration for his math class. He took a football to the edge of the roof of the school building and kicked it up into the air at a slight angle, so that the ball eventually fell all the way to the ground. The class determined that the motion of the ball from the time it was kicked could be modeled closely by the function,

$$h(t) = -16t^2 + 96t + 112$$

where *h(t)* represents the height of the ball in feet after *t* seconds.

a) Determine whether the function has a maximum or minimum value. Explain your answer.

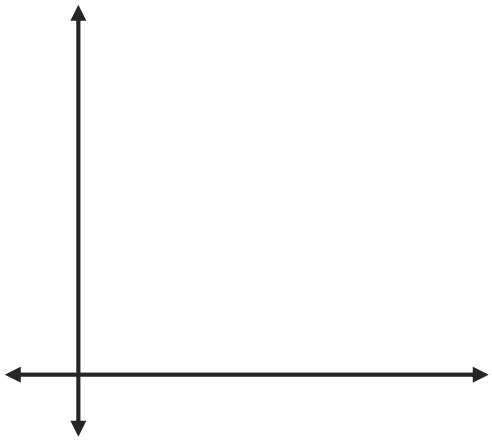
b) Find the maximum or minimum value of the function. After how many seconds did the ball reach this value? Show how you found your answer.

c) Evaluate *h(0).* What does this value tell you? Explain in the context of the problem.

d) How long is the ball in the air? Explain your answer.

e) What interval of the domain is the ball increasing (i.e., ball going up)? For what interval of the domain is the function decreasing (i.e., ball going down)? Explain how you know.

f) Do a rough graph of the problem. Label the x-axis, y-axis, vertex, x-intercept and y-intercept.



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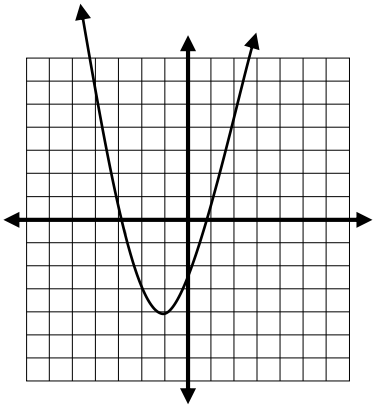
On the scantron, choose the best answer.

1. Which function is represented by the graph?



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

B. $f(x) = -x^2 - 2x - 3$

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

D. $f(x) = x^2 - 2x - 3$

2. Find the vertex of the graph $f(x) = x^2 - 6x + 10$

3. Which function has a maximum value

A. $f(x) = x^2 + 2x - 15$

B. $f(x) = -x^2 + 3x + 40$

C. $f(x) = (x+5)^2 - 11$

D. $f(x) = (x+4)(x-3)$

4. What are the zeros and vertex of this graph:
$f(x) = (x+5)(x-3)$

5. The graphs of $f(x) = (x+4)^2 - 6$ can be obtained from the graph of $f(x) = x^2$ using what transformation?

Translate