Pre-Calculus w/Trig Peto
Quadratic Review Worksheet Day 08

Name _____
Date _____ Period _____

OBJECTIVE: *You will be able to operate on quadratic functions, find the inverse of quadratic functions, and graph quadratic functions.*

Find the following characteristics of each quadratic:
(Use factoring where appropriate)

a. vertex
b. axis of symmetry
c. y-intercept
d. x-intercept(s)

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

a.

b.

c.

d.

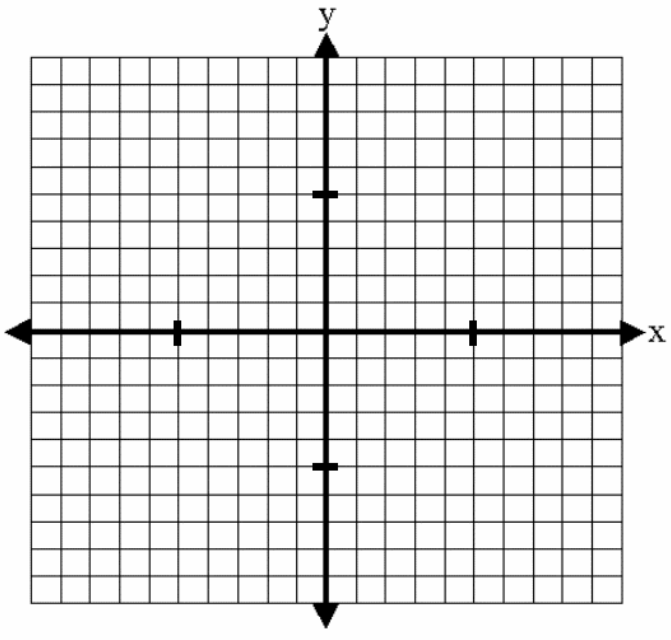
2. $g(x) = \frac{1}{5}x^2 - \frac{3}{5}x - 4$

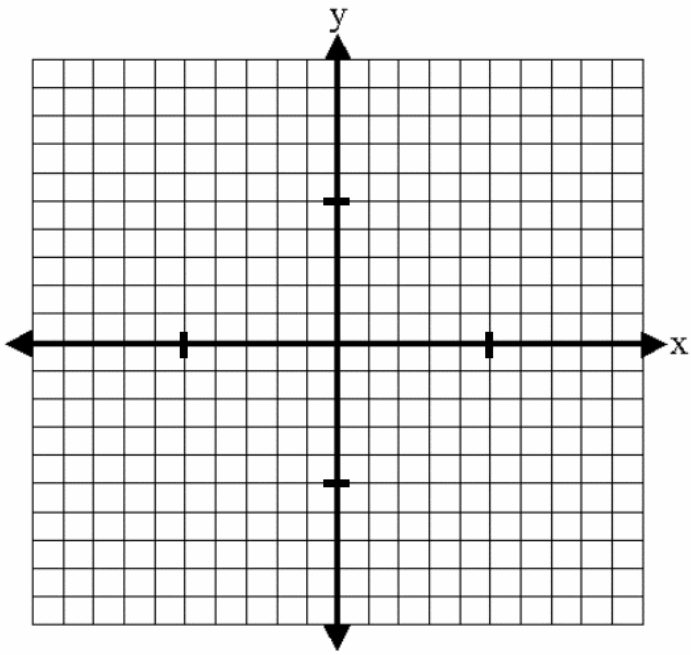
a.

b.

c.

d.

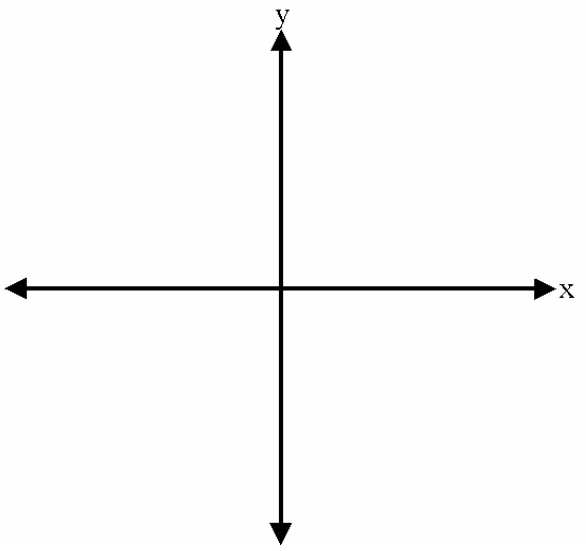




The following word problems give real life scenarios that require you to find specific characteristics of the model equation. Think about the graphs and decide what characteristic you need to find to answer each question. Use factoring when appropriate.

The woodland jumping mouse can hop surprisingly long distances given its small size. A relatively long hop can be modeled by $y = -\frac{2}{9}x^2 + \frac{4}{3}x$ where x is horizontal distance measured in feet and y is the mouse's height measured in feet.

1. Draw a rough sketch of the equation.

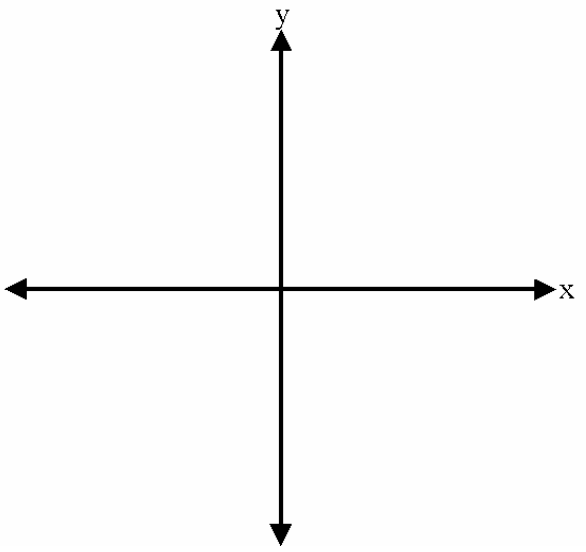


2. How far can a woodland jumping mouse hop? What characteristic of the graph helps you find your answer?

3. How high can a woodland jumping mouse jump? What characteristic of the graph helps you find the answer?

The WEGO Wildcats football team was playing Glenbard North for homecoming. The Wildcats were down by a field goal with time for one last play. The quarterback threw a "hail mary" pass into the endzone to win the game. To Loyal Fan standing at the 50 yard line ($x = 0$) , the ball traveled along the path $y = -\frac{1}{50}x^2 + \frac{4}{5}x + 10$.

1. Draw a rough sketch of the model function. The 50-yard line is at $x = 0$ or the y-axis.



2. How high is the football when it passes in front of Loyal Fan? What characteristic of the graph helps you find your answer?

3. At what yard line does the football reach its vertex? What characteristic does this line represent?

Factor the following polynomials:

1. $2x^3 - 3x^2y - 2xy^2 + 3y^3$

2. $4x^4 + 20x^3 - 96x^2$

3. $27x^3 - 64$

4. $8 - y^3$

5. $12x^2 + 24x - 12$

6. $9x^2 - 16y^2$