

Algebra II Academic
Chapter 5 Study Guide
(Sections 5.1-5.4, 5.6)

Name _____
Date _____ Period _____

In #1-6, factor the following expressions completely.

1) $x^2 - 13x - 30$

2) $7yx - 35y + 4qx - 20q$

3) $100x^2 - 36$

4) $6x^2 + 7x - 10$

5) $6x^3 + 46x^2 + 60x$

6) $27t^3 - 1$

In #7-12, find the solutions (roots, zeros, x-intercepts) for each quadratic equation.
Round to the thousandths place if necessary.

7) $x^2 = 13x + 30$

8) $10 - 7x^2 = -102$

9) $5x^2 - 17x - 10 = 0$

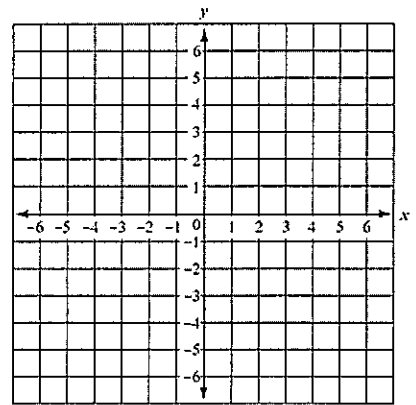
10) $6x^2 - 10 = 11x$

11) $7x^2 - 23 = 5$

12) $9x^2 - 6x + 1 = 0$

13) Find the discriminant of the following quadratic equation, state the number of real solutions, and sketch a possible graph.

$$-5x^2 - 5x + 4 = -6$$



In #14-15, graph the quadratic function.

14) Sketch a graph of the following quadratic function: $y = -(x - 1)^2 + 1$

Open Up or Down: _____

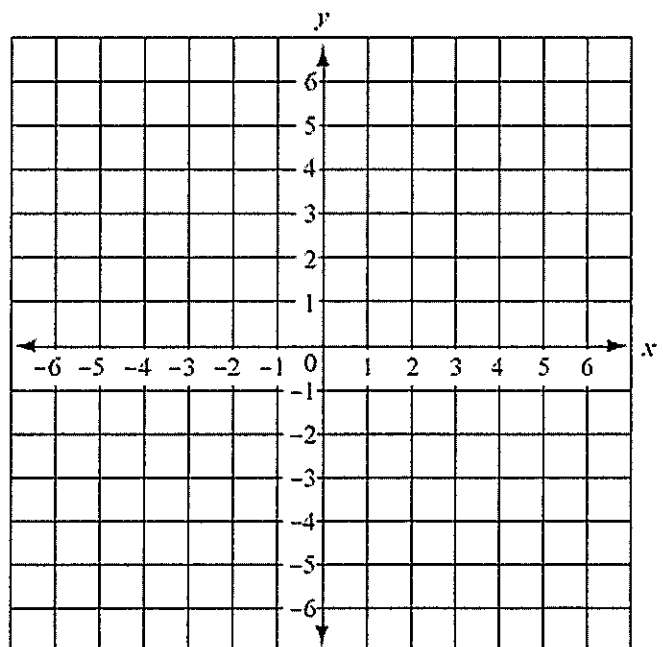
Max or Min: _____

Vertex: _____

Axis of Symmetry: _____

Domain: _____ Range: _____

X-Intercepts:



15) Sketch a graph of the following quadratic function: $y = 2x^2 - 3x - 2$

Open Up or Down: _____

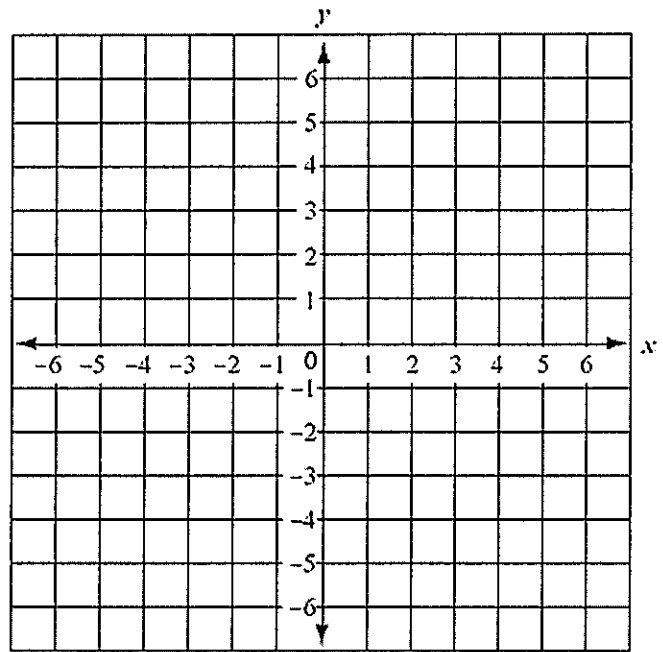
Max or Min: _____

Vertex: _____

Axis of Symmetry: _____

Domain: _____ Range: _____

X-Intercepts:



16) A rocket is launched from ground level with an initial velocity of 192 ft/sec . The height, h , in feet of the rocket at any given time, t , in seconds is given by $h(t) = 192t - 16t^2$.

ROUNDING: If necessary, round to the thousandths place.

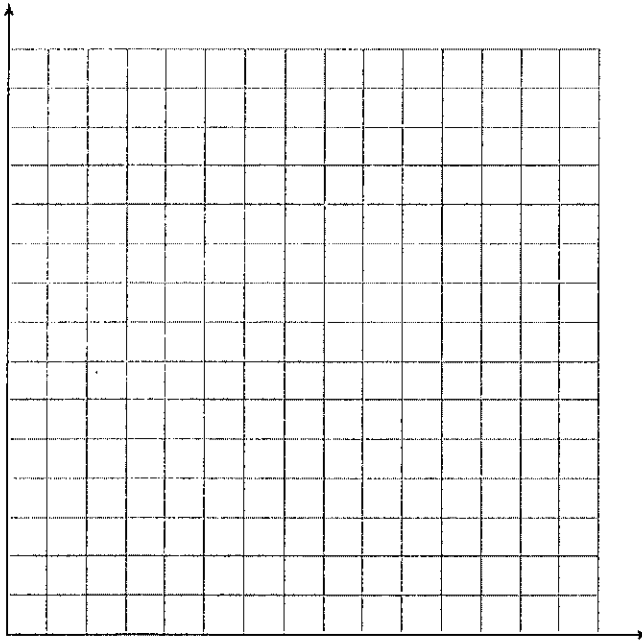
a. When will the rocket reach the ground? Write the answer(s) in function notation.

b. When will the rocket reach a height of 512 feet? Write the answer(s) in function notation.

c. When will the rocket reach its maximum height?

d. What is the rocket's maximum height?

e. Use the answers from parts (a)-(d) to graph this situation.



D: _____

R: _____