

## Chapter 2A Practice Test

1. A graph has a vertex at  $(2, -9)$  and goes through the point  $(5, 27)$ . Find the equation of the graph in vertex form and standard form.
2. The x-intercepts of a graph are  $\left(-\frac{5}{2}, 0\right)$  and  $(6, 0)$ . The graph goes through  $(9, -23)$ . Solve for the equation of the parabola in factored form.
3. The x-intercepts of a graph are  $(-7, 0)$  and  $(-10, 0)$ . The graph goes through  $(12, 836)$ . Solve for the equation of the parabola in factored form and standard form.

Factor the following completely.

4.  $6x^2 - 24$

5.  $x^2 - 23x + 132$

6.  $3x^2 - 12x - 135$

7.  $10x^2 - 29x - 21$

8.  $4x^2 - 64$

9.  $4x^2 - 14x - 8$

10. Now solve for the x-intercepts for #4 & #5

11. Solve by factoring:  $21x + 108 = -x^2$

12. The following equation  $f(x) = -6x^2 + 12x + 378$  represents the time it takes for a soccer ball to get kicked into the air and come back down. Height is measured in yards.

a. What is the maximum height of the ball?

b. When does the ball hit the ground?

13. State the key features of  $y = 12(x + 8)^2 - 5$

Vertex:

Max or Min

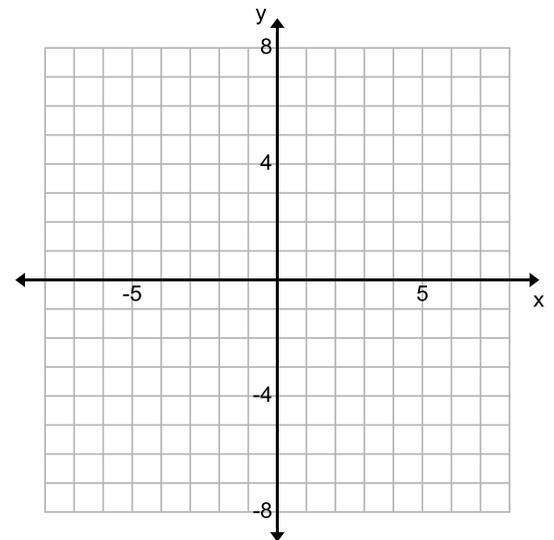
Axis of Symmetry:

Domain:

Range:

14. Your class is doing a project when you get to launch homemade rockets into the air. Your team's rocket reached its maximum height of 60ft after 7 seconds. After 11 seconds, the rocket is still 52 ft in the air. Find the equation that represents this rocket in vertex and standard form.

15. Sketch a complete graph of  $y = -\frac{1}{2}x^2 - x + 4$ . Be sure to include the vertex,  $y$ -intercept and symmetrical point.



16. Frank State College is trying to maximize its profit in the cafeteria. They come up with a price equation for the pasta that is  $f(x) = -4x^2 + 200x + 92$ . How many pasta plates should they sell per night to maximize their profit?