

## Chapter 5 Practice Test

- For each function:
- List the coordinates of the vertex
  - List the axis of symmetry equation
  - Does the parabola open up or down?
  - Change from vertex form to standard form

1.  $y - 1 = \frac{1}{2}(x - 5)^2$

- 
- 
- 
- 

2.  $y + 6 = -2(x - 1)^2$

- 
- 
- 
- 

- For each function:
- List the coordinates of the vertex
  - List the axis of symmetry equation
  - What is the y-intercept?
  - What are the coordinates of the symmetric point?
  - Find the x-intercepts (roots).
  - Graph the function.

3.  $y = x^2 - x - 12$

- 
- 
- 
- 
- 

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

- 
- 
- 
- 
- 

5. What does  $i$  equal?For the function,  $f(x) = 3x^2 + 4x - 1$ ,

- Find  $f(2)$ .
- Find  $f(x) = 3$ .

For the function,  $f(x) = \frac{1}{2}x^2 - 5x + 2$ ,

8. Find  $f(-4)$ .

9. Find  $f(x) = 14$ .

Find the real or complex roots of each function.

10.  $f(x) = x^2 - 8x + 17$

11.  $f(x) = 4x^2 - 23x + 15$

12.  $f(x) = 9x^2 + 6x + 1$

Use the discriminant to determine whether each function has one real root, two real roots, or two complex roots.

20.  $0 = 3x^2 + 2x + 5$

21.  $0 = 4x^2 - 5x - 2$

22.  $0 = x^2 - 4x + 4$

For the function  $f(x) = 4x^2 - 6x - 3$  (Round your answers to two decimal places.)

23. Find  $f(2.5)$

24. Find  $f(x) = 30$

25. Find the coordinates of the minimum value of the function.

26. Find the roots of the function.

27. Write the equation of the parabola that contains  $(-2, 22)$ ,  $(2, -12)$ ,  $(8, -39)$ .

A rocket blasts off, then falls back to earth. At 1 second, it is 200 feet above the ground. At 2 seconds, it is 360 feet above the ground. At 5 seconds, it is 450 feet above the ground.

28. Write the equation for the path of the rocket.

29. What is the rocket's height at 3 seconds?

30. When will the rocket reach maximum altitude? What is the maximum altitude?

31. When will the rocket hit the earth?