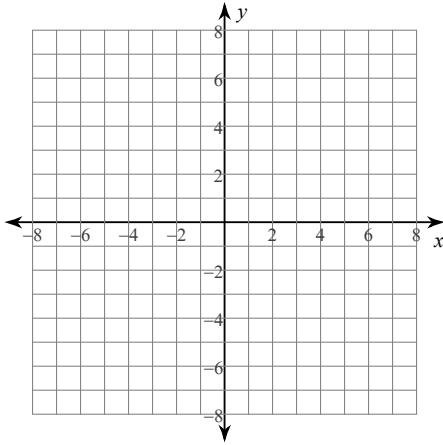


## Chapter 4 Review for FINAL

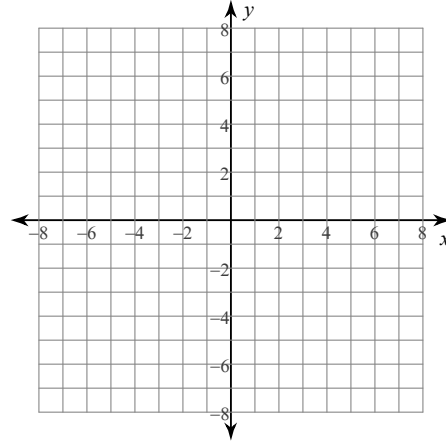
Date \_\_\_\_\_ Period \_\_\_\_\_

Identify the vertex, axis of symmetry, domain, range, and direction of opening of each. Then sketch the graph.

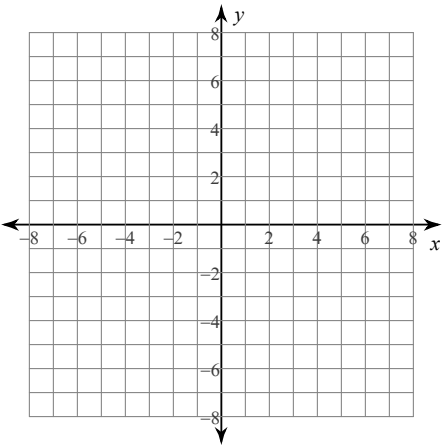
1)  $y = (x - 6)^2 - 2$



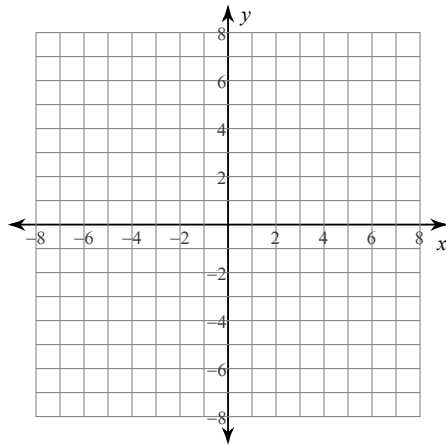
2)  $y = \frac{1}{4}(x - 4)^2 - 1$



3)  $y = -x^2 + 6x - 6$



4)  $y = 2x^2 + 4x + 2$



**Solve each equation by factoring.**

5)  $x^2 + 5x - 14 = 0$

6)  $3n^2 - 27n = -54$

7)  $15r^2 + 19r - 56 = 0$

8)  $3x^2 - 8x - 16 = 0$

9)  $6b^2 - 12b = 0$

10)  $6b^2 + 9 = 177$

**Solve each equation by completing the square.**

11)  $v^2 - 20v - 79 = -10$

**Find all zeros.**

12)  $f(x) = 5x^2 - 24x - 5$

**Solve each equation with the quadratic formula.**

13)  $8m^2 + 11 = 8m$

14)  $10a^2 + 7 = 8a$

**Simplify.**

15)  $(-6 - 3i) + (5 - 8i)$

16)  $(2 + 7i) - (7 - i)$

17)  $(8i)(i)(-4 + 4i)$

18)  $(7 + 4i)^2$

19)  $(i)^{15}$

20)  $(i)^{99}$

**Solve the following systems of equations.**

21)  $y = x^2 + 3x - 5$   
 $y = x + 3$

22)  $y = x^2 - 4x + 6$   
 $y = x + 2$

**Find the discriminant of each quadratic equation then state the number and type of solutions.**

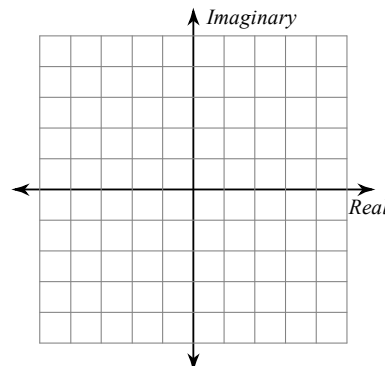
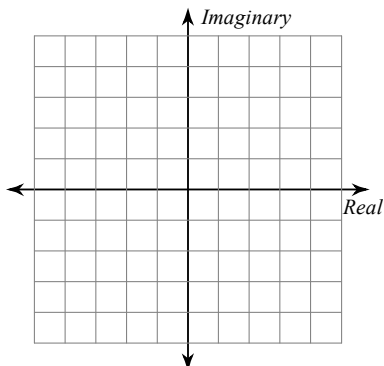
23)  $-2n^2 + n + 1 = 6$

24)  $8m^2 + 8m + 11 = 9$

**Graph each number in the complex plane.**

25)  $-2 - 3i$

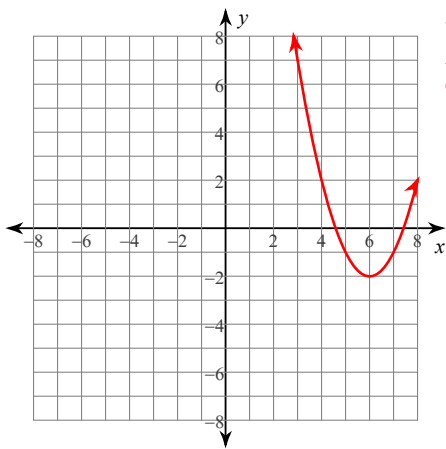
26)  $2 - 2i$



## Chapter 4 Review for FINAL

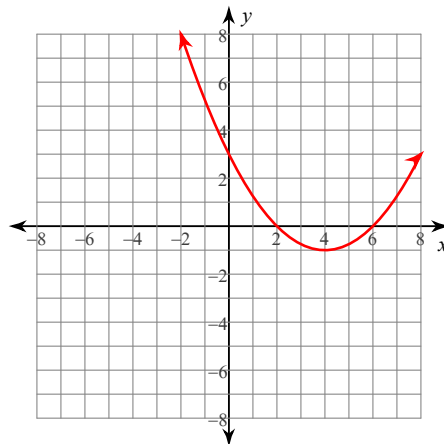
Identify the vertex, axis of symmetry, domain, range, and direction of opening of each. Then sketch the graph.

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



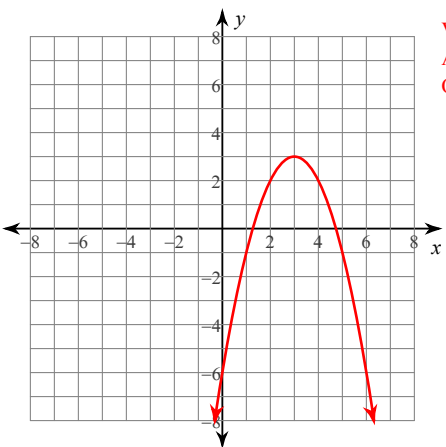
Vertex:  $(6, -2)$   
 Axis of Sym.:  $x = 6$   
 Opens: Up

2)  $y = \frac{1}{4}(x - 4)^2 - 1$



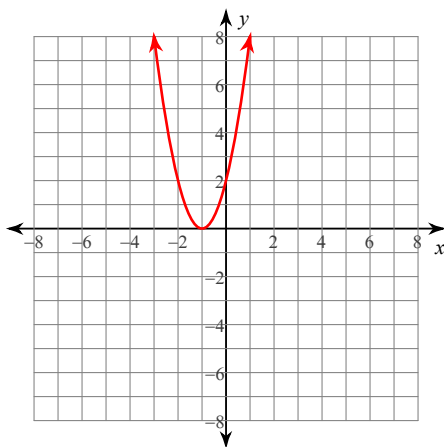
Vertex:  $(4, -1)$   
 Axis of Sym.:  $x = 4$   
 Opens: Up

3)  $y = -x^2 + 6x - 6$



Vertex:  $(3, 3)$   
 Axis of Sym.:  $x = 3$   
 Opens: Down

4)  $y = 2x^2 + 4x + 2$



Vertex:  $(-1, 0)$   
 Axis of Sym.:  $x = -1$   
 Opens: Up

**Solve each equation by factoring.**

5)  $x^2 + 5x - 14 = 0$

$$\{-7, 2\}$$

6)  $3n^2 - 27n = -54$

$$\{6, 3\}$$

7)  $15r^2 + 19r - 56 = 0$

$$\left\{\frac{7}{5}, -\frac{8}{3}\right\}$$

8)  $3x^2 - 8x - 16 = 0$

$$\left\{-\frac{4}{3}, 4\right\}$$

9)  $6b^2 - 12b = 0$

$$\{2, 0\}$$

10)  $6b^2 + 9 = 177$

$$\{2\sqrt{7}, -2\sqrt{7}\}$$

**Solve each equation by completing the square.**

11)  $v^2 - 20v - 79 = -10$

$$\{23, -3\}$$

**Find all zeros.**

12)  $f(x) = 5x^2 - 24x - 5$

$$\left\{-\frac{1}{5}, 5\right\}$$

**Solve each equation with the quadratic formula.**

13)  $8m^2 + 11 = 8m$

$$\left\{\frac{2 + 3i\sqrt{2}}{4}, \frac{2 - 3i\sqrt{2}}{4}\right\}$$

14)  $10a^2 + 7 = 8a$

$$\left\{\frac{4 + 3i\sqrt{6}}{10}, \frac{4 - 3i\sqrt{6}}{10}\right\}$$

**Simplify.**

15)  $(-6 - 3i) + (5 - 8i)$   
 $-1 - 11i$

16)  $(2 + 7i) - (7 - i)$   
 $-5 + 8i$

17)  $(8i)(i)(-4 + 4i)$   
 $32 - 32i$

18)  $(7 + 4i)^2$   
 $33 + 56i$

19)  $(i)^{15}$   
 $-i$

20)  $(i)^{99}$   
 $-i$

**Solve the following systems of equations.**

21)  $y = x^2 + 3x - 5$   
 $y = x + 3$   
 $\{(-4, -1), (2, 5)\}$

22)  $y = x^2 - 4x + 6$   
 $y = x + 2$   
 $\{(4, 6), (1, 3)\}$

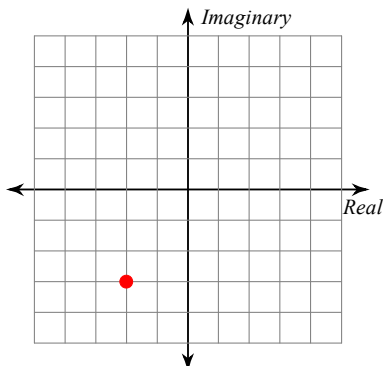
**Find the discriminant of each quadratic equation then state the number and type of solutions.**

23)  $-2n^2 + n + 1 = 6$   
 $-39$ ; no real solution, two imaginary solutions

24)  $8m^2 + 8m + 11 = 9$   
 $0$ ; one real solution

**Graph each number in the complex plane.**

25)  $-2 - 3i$



26)  $2 - 2i$

