KEY for 5-5 Evaluating Functions hw

1. **a.** 14
b. 0.4, −2
c. ≈ 0.628, −2.228
2. **a.** 41
b. 3.5, −1
c. ≈ 3.908, −1.408
3. **a.** −199
b. 1, 0.5
c. no real values
4. **a.** −33
b. no real values
c. −1.5, 2.5
5. **a.** −2, −6
b. $-4 \pm \sqrt{3}$
c. −3, −5
d. −4
e. no real values
f. 0, −8
6. **a.** no real values
b. −3
c. −2, −4
d. $-3 \pm \sqrt{2}$
e. −1, −5
f. 0, −6
7. yes no
8. yes yes
9. no no
10. yes no
11. no yes
12. no yes
13. yes yes
14. no yes

Work the following problems.

1. Suppose that $f(x) = 5x^2 + 8x - 7$.
   a. Find $f(-3)$.
   b. Find x when $f(x) = -3$.
   c. Find the x-intercepts.

2. Suppose that $g(x) = 2x^2 - 5x - 11$.
   a. Find $g(-4)$.
   b. Find x when $g(x) = -4$.
   c. Find the x-intercepts.

3. Suppose that $h(x) = -2x^2 + 3x - 10$.
   a. Find $h(-9)$.
   b. Find x when $h(x) = -9$.
   c. Find the x-intercepts.

4. Suppose that $f(x) = -4x^2 + 4x + 15$.
   a. Find $f(-3)$.
   b. Find x when $f(x) = 20$.
   c. Find the x-intercepts.

5. Suppose that $y = x^2 + 8x + 15$. Find the value(s) of x for which
   a. $y = 3$, b. $y = 2$, c. $y = 0$,
   d. $y = -1$, e. $y = -3$, f. $y = 15$.

6. Suppose that $y = -x^2 - 6x - 5$. Find the value(s) of x for which
   a. $y = 5$, b. $y = 4$, c. $y = 3$,
   d. $y = 2$, e. $y = 0$, f. $y = -5$.

For Problems 7 through 14, use the discriminant to tell whether or not the indicated function ever has the given values of y (for *real* values of x).

7. $y = 4x^2 - 7x + 2$; $y = 5$, $y = -3$.
8. $y = 3x^2 + 10x - 1$; $y = 6$, $y = -4$.