

1.  $2(x^2 - 11)$
2.  $4(3x^2 + 7)$
3.  $6(x + 2)(x - 2)$
4.  $3(x - 7)(x + 2)$
5.  $(x + 10)(x - 10)$
6.  $(5x + 3)(5x - 3)$
7.  $(2v + 1)(v - 4)$
8.  $4(x + 5)(x - 3)$
9.  $(2x + 5)(2x - 5)$
10.  $(2x + 3)(3x + 5)$
11.  $(x - 7)(x - 3)$
12.  $4(x + 5)(x - 3)$
13.  $(-13, 0), (-2, 0), (-7.5, -30.25), (0, 26)$
14.  $(-4, 0), (8, 0), (2, -36), (0, -32)$
15.  $(\frac{1}{8}, 0), (-\frac{1}{8}, 0), (0, -1)$
16.  $(-2, 0), (4, 0), (-1, -90), (0, -80)$
17.  $(-1.5, 0), (1.5, 0), (0, -45)$
18.  $x = 0$  or  $-5$
19.  $x = -7$  or  $1$
20.  $x = -2.5$  or  $-1$
21. discriminant = 0, 1 real rational
22. discriminant = -44, 2 imaginary (no real)
23. discriminant = 76, 2 real irrational
24. 2 left, 3 down
25. 2 left
26. 9 right
27. reflect x-axis, stretch 4
28. 3 down
29. stretch  $\frac{1}{3}$
30.
  - a. 2.5 sec
  - b. 106 ft
  - c. 0.5 or 4.5 sec
31.
  - a. \$1160
  - b. \$11
  - c. \$1120
32.
  - a. min – because it opens upward
  - b.  $x^2 + 2x - 15$  or  $x^2 + 4x - 30$
33.  $f + g = x^4 + 9x^3 - 2x + 5$      $f - g = x^4 + x^3 - 12x + 5$
34.  $f + g = 12x^4 + 5x^3 - 2x + 5$      $f - g = 5x^3 - 12x + 5$
35.  $3 \pm \sqrt{5}$
36.  $-5$  or  $-3$
37.  $-2 \pm \sqrt{2}$
38. 3 or  $-\frac{1}{2}$
39.  $-1 \pm \sqrt{3}$
40.  $2 \pm \frac{\sqrt{22}}{2}$