Name: Key

9.5 (discriminant included)

Find the value of the discriminant and determine the number of solutions.

1) $4m^2 + 2m - 2 = 0$ 2 solutions

$b^2 - 4ac$

$(2)^2 - 4(4)(-2)$

$4 + 32$ 36

2) $15x^2 - 10x = 1$

$(-10)^2 - 4(15)(-1)$

$100 + 60$

160

2 sol

3) $20x = 4x^2 + 3x$

$(3)^2 - 4(4)(-20)$

$9 + 320$

329

2 sol

4) $x^2 - 4x + 4$

$(-4)^2 - 4(1)(4)$

$16 - 16$

0

1 sol

Use the quadratic formula to solve the equation.

5) $0 = -5x^2 + 7x - 2$

$\frac{-7 \pm \sqrt{49 - 4(-5)(-2)}}{-10}$

$\frac{-7 \pm \sqrt{9}}{-10}$

$\frac{-7 \pm 3}{-10}$

$1, \frac{2}{5}$

6) $8x^2 - 2 = 5x$

$\frac{+5 \pm \sqrt{25 - 4(8)(-2)}}{16}$

$\frac{5 \pm \sqrt{89}}{16}$

Find the roots of the graph.

7) $-6p^2 + 4p - \frac{1}{3} = y$

$\frac{-4 \pm \sqrt{16 - 4(\frac{1}{3})(-6)}}{2(-6)}$

$\frac{-4 \pm \sqrt{24}}{-12}$

$\frac{-4 \pm 2\sqrt{6}}{-12}$

$\frac{-2 \pm \sqrt{6}}{6}$

8) $y = -4x^2 + x + 14$

$\frac{-1 \pm \sqrt{1 - 4(-4)(14)}}{-8}$

$\frac{-1 \pm \sqrt{225}}{-8}$

$\frac{-1 \pm 15}{-8}$

$2, -\frac{7}{4}$

Find the x-intercepts of the quadratic.

9) $y = 6x^2 - x - 12$

$\frac{-(-1) \pm \sqrt{(-1)^2 - 4(6)(-12)}}{2(6)}$

$\frac{1 \pm \sqrt{289}}{12}$

$\frac{-1 \pm 17}{12}$

$-\frac{3}{2}, \frac{4}{3}$

10) $x^2 + 2x - 2 = y$

$\frac{-(2) \pm \sqrt{4 - 4(1)(-2)}}{2}$

$\frac{-2 \pm \sqrt{12}}{2}$

$\frac{-2 \pm 2\sqrt{3}}{2}$

$-1 \pm \sqrt{3}$

Find the zeros of the function.

11) $g(x) = 4x^2 + 3x - 1$

$\frac{-3 \pm \sqrt{9 - 4(4)(-1)}}{2(4)}$

$\frac{-3 \pm \sqrt{25}}{8}$

$\frac{-3 \pm 5}{8}$

$-1, \frac{1}{4}$

12) $h(x) = 4x^2 + 4x - 1$

$\frac{-(4) \pm \sqrt{16 - 4(4)(-1)}}{2(4)}$

$\frac{-4 \pm \sqrt{32}}{8}$

$\frac{-4 \pm 4\sqrt{2}}{8}$

$\frac{-1 \pm \sqrt{2}}{2}$