Name: _____

Quadratic Formula Part 2

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

Use the quadratic formula to determine the roots.

Quadratic Formula steps:	$f(x) = 6x^2 + x - 12$
Identify *a, b & c.*	$f(x) = \boxed{6}x^2\boxed{+1}x\boxed{-12}$ $a = 6, b = 1, c = -12$
Plug *a, b & c* into the Quadratic Formula.	$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} = \frac{-(\ \ ) \pm \sqrt{(\ \ )^2 - 4(\ \ )(\ \ )}}{2(\ \ )}$
Simplify each part.	$x = \frac{-(1) \pm \sqrt{(1)^2 - 4(6)(-12)}}{2(6)} = \frac{-1 \pm \sqrt{1 + 288}}{12} = \frac{-1 \pm \sqrt{289}}{12} = \frac{-1 \pm 17}{12}$
Split the equation into two equations: one + and one –.	$x = \frac{-1 - 17}{12} \quad or \quad x = \frac{-1 + 17}{12}$
Simplify the numerator (top).	$x = \frac{-18}{12} \quad or \quad x = \frac{16}{12}$
Divide top and bottom by the GCF.	$x = \frac{-18 \div 6}{12 \div 6} \quad or \quad x = \frac{16 \div 4}{12 \div 4}$
Simplify	$\boxed{x = -\frac{3}{2} \quad or \quad x = \frac{4}{3}}$

1. $f(x) = 3x^2 - 3x - 6$	2. $g(x) = 2x^2 - 6x - 20$	3. $h(x) = -5x^2 + 5x + 10$

4. $j(x) = 6x^2 + 6x - 12$	5. $k(x) = -2x^2 + 2x + 12$	6. $m(x) = -x^2 + 14x - 48$
7. $n(x) = 5x^2 - 14x - 3$	8. $p(x) = -15x^2 - 13x - 2$	9. $r(x) = -4x^2 + 16x - 15$
10. $f(x) = 2x^2 - 12x - 14$	11. $g(x) = x^2 + 7x - 8$	12. $h(x) = 4x^2 - 9$

Answers

1. $x = -1 \quad or \quad x = 2$	2. $x = -2 \quad or \quad x = 5$	3. $x = -1 \quad or \quad x = 2$
4. $x = -2 \quad or\ x = 1$	5. $x = -2 \quad or \quad x = 3$	6. $x = 6 \quad or \quad x = 8$
7. $x = -\frac{1}{5} \quad or \quad x = 3$	8. $x = -\frac{2}{3} \quad or \quad x = -\frac{1}{5}$	9. $x = \frac{3}{2} \quad or \quad x = \frac{5}{2}$
10. $x = -1 \quad or \quad x = 7$	11. $x = -8 \quad or \quad x = 1$	9. $x = -\frac{3}{2} \quad or \quad x = \frac{3}{2}$