

Accelerated Geom/Alg 2
Solving Rational Equations Practice

Name Key
Date _____ Block _____

Solve for x and check for extraneous solutions.

$$1. \frac{3x}{x-2} + \frac{1}{x+2} = \frac{-4}{x^2-4}$$

$(x+2)(x-2)$

$$3x(x+2) + x-2 = -4$$

$$3x^2 + 6x + x - 2 = -4$$

$$3x^2 + 7x + 2 = 0$$

$$(3x+1)(x+2) = 0$$

	x	2
$3x$	$3x^2$	$6x$
1	x	2

$$x = -1/3, -2$$

1. $x = -1/3$

$$2. \frac{5}{2x+3} + \frac{4}{2x-3} = \frac{14x+3}{4x^2-9}$$

$(2x+3)(2x-3)$

$$5(2x-3) + 4(2x+3) = 14x+3$$

$$10x - 15 + 8x + 12 = 14x + 3$$

$$18x - 3 = 14x + 3$$

$$4x = 6$$

$$x = 3/2$$

2. no solution

$$3. \frac{3x-1}{x-2} + 3 = \frac{x}{x-2}$$

$$3x-1 + 3(x-2) = x$$

$$3x-1 + 3x-6 = x$$

$$6x-7 = x$$

$$-7 = -5x$$

$$7/5 = x$$

3. $x = 7/5$

$$4. \frac{x+1}{x+3} = 2$$

$$x+1 = 2(x+3)$$

$$x+1 = 2x+6$$

$$-5 = x$$

4. $x = -5$

$$5. \frac{2x}{5} = \frac{x^2 - 2x}{5x}$$

$$2x^2 = x^2 - 2x$$

$$x^2 + 2x = 0$$

$$x(x+2) = 0$$

$$x = 0, -2$$

$$6. \frac{3}{x} + 12 = 2 + \frac{4}{3x}$$

$$9 + 36x = 6x + 4$$

$$30x = -5$$

$$x = -1/6$$

$$7. \frac{3}{x-8} - \frac{4}{x-2} = \frac{28}{x^2 - 10x + 16}$$

$$(x-8)(x-2)$$

$$3(x-2) - 4(x-8) = 28$$

$$3x - 6 - 4x + 32 = 28$$

$$-x + 26 = 28$$

$$-x = 2$$

$$x = -2$$

$$8. \frac{5x+2}{10x-3} = \frac{x-8}{2x+3}$$

$$(5x+2)(2x+3) = (x-8)(10x-3)$$

$$10x^2 + 19x + 6 = 10x^2 - 83x + 24$$

$$102x = 18$$

$$x = \frac{3}{17}$$

$$9. \frac{2x}{x-2} - \frac{4x-1}{3x+2} = \frac{17x+4}{3x^2-4x-4}$$

$$(3x+2)(x-2)$$

$$2x(3x+2) - (4x-1)(x-2) = 17x+4$$

$$6x^2 + 4x - (4x^2 - 9x + 2) = 17x + 4$$

$$6x^2 + 4x - 4x^2 + 9x - 2 - 17x - 4 = 0$$

$$2x^2 - 4x - 6 = 0$$

$$2(x^2 - 2x - 3) = 0$$

$$5. \underline{x = -2}$$

$$6. \underline{x = -1/6}$$

$$7. \underline{x = -2}$$

$$8. \underline{x = 3/17}$$

$$9. \underline{x = 3, -1}$$

$$2(x-3)(x+1) = 0$$

$$x = 3, -1$$