Names (pair) _____ Date _____

Quadratic Equations with Fractions

Example

$x + \frac{6}{x} = 5$, condition: $x \neq 0$. Multiply by x : $x^2 + 6 = 5x$

$x^2 - 5x + 6 = 0 \Rightarrow x_1 = 2$, $x_2 = 3$. Both are different from 0 , so both are solutions.

Remember

1. Write the condition: no denominator may be 0. **2.** Multiply the equation by the common denominator. **3.** Solve the quadratic equation. **4.** Reject any solutions that break the condition.

1 IN PAIRS Solve. **Student A** does the top three equations and **student B** the bottom three. Then check your partner's solutions by substituting.

	equation	condition	quadratic equation	solutions
student A	$x + \frac{4}{x} = 5$			
	$x - 3 = \frac{10}{x}$			
	$\frac{12}{x} = x + 1$			
student B	$x - \frac{6}{x} = 1$			
	$x + \frac{9}{x} = 6$			
	$\frac{8}{x} = x - 2$			

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2 IN PAIRS Solve $\frac{x^2}{x-2} = \frac{4}{x-2}$. Watch the condition.

condition: ☐ $x^2 =$ ☐ ⇒ ☐

solution: ☐

3 IN PAIRS Solve: $\frac{1}{x} + \frac{1}{x+2} = \frac{3}{4}$.

4 IN PAIRS A cyclist rode 60 km. Had he ridden 5 km/h faster, he would have arrived an hour earlier. How fast did he ride? Hint: time is distance divided by speed.

★ ON YOUR OWN **Exit card.** Solve: $x + \frac{2}{x} = 3$.