

## Rational Equation Example

Math 130 Kovitz

Solve for  $x$ .

$$\frac{2}{0.3} = \frac{x}{x + 17}$$

Clear the fractions by cross-multiplying. Then see if the remaining equation is linear or quadratic. If linear, isolate the terms with the unknown variable for which we are solving. Then factor it out and divide by the coefficient. It is always a good idea to check the solutions in the *original* equation, using a calculator if necessary.

$$0.3x = 2(x + 17) \quad \text{Cross multiply.}$$

$$0.3x = 2x + 34 \quad \text{Distribute the 2 over the two terms.}$$

$$-34 = 1.7x \quad \begin{array}{l} \text{Isolate the } x \text{ terms on the right side of the equation.} \\ \text{Pick the side so } x \text{ will have a positive coefficient.} \end{array}$$

$$x = -20 \quad \text{Divide both sides of the equation by 1.7, the coefficient of } x.$$

Check the answer.

$$6.66667 = \frac{-20}{17 - 20}.$$

$$6.66667 = \frac{-20}{-3}.$$

$$6.66667 = 6.66667.$$

It checks.