

To eliminate fractions: multiply every term by the LCD

When the fractions involve a variable in the denominator, always check for extraneous or untrue solutions.

For example:  $\left(\frac{2x}{x-3} = 4 + \frac{6}{x-3}\right) \times (x-3)$

$3-3=0$  in denominator

$$2x = 4x - 12 + 6$$

$$-2x = -6$$

$$x = 3$$

no solution

Try these examples:

$$10x + 6 - 2(1 - 5x) = 9$$

$$10x + 6 - 2 + 10x = 9$$

$$20x + 4 = 9$$

$$20x = 5$$

$$x = \frac{1}{4}$$

$$12x \left( \frac{3}{x} + \frac{1}{4} = \frac{2}{3} + \frac{1}{x} \right) \quad \text{LCD: } 12x$$

$$36 + 3x = 8x + 12$$

$$24 = 5x$$

$$x = \frac{24}{5}$$

A few word problems:

High interest rates make it difficult for people to pay off credit card debt in a reasonable period of time. The interest  $I$  (in dollars) paid on a \$10,000 debt over 3 years when the interest rate is  $r\%$  can be approximated by the equation

$$\frac{I}{175.393} + 0.663 = r$$

(Source: Consumer Federation of America). If the credit card interest rate is 19.8%, find the amount of interest paid during the 3 years.

$$\frac{I}{175.393} + .663 = 19.8$$

$$175.393 \left( \frac{I}{175.393} \right) = 19.137$$

$$I = \$3,356.50$$