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SOLVING EQUATIONS WITH FRACTIONAL COEFFICIENTS

p.556-565

Equations:

Transform each equation into an equivalent equation that does not contain fractional coefficients. This can be done by multiplying each side of the equation by a common denominator for all fractions present in the equation.

Procedure:

- 1) Find the L.C.D of all coefficients.
- 2) Multiply both sides of the equation by the L.C.D.
- 3) Solve the resulting equation using the usual methods.
- 4) Check in the original equation

Examples.

1. $\overset{15}{\left(\frac{x}{3} + \frac{x}{5} = \frac{8}{1}\right)}$

$$\overset{5}{15} \cdot \frac{x}{3} + \overset{3}{15} \frac{x}{5} = 8 \cdot 15$$

$$5x + 3x = 120$$

$$\frac{8x}{8} = \frac{120}{8}$$

$$x = 15$$

2. $\overset{4}{\frac{3x}{4}} = \overset{4}{\frac{20}{1}} + \frac{x \cdot 4}{4}$

$$\overset{3}{12} \frac{x}{4} = 80 + \frac{4x}{4}$$

$$3x = 80 + x$$

$$\begin{array}{r} -x \\ \hline 2x = 80 \end{array}$$

$$x = 40$$

$$3. \quad \frac{5}{30}(2x+7) - \frac{3}{10}2x-9 = 3 \cdot 30$$

$$10x+35-6x+27=90$$

$$4x+62=90$$

$$4x=28$$

$$x=7$$

4. A woman purchased stock in the PAX Company over 3 months. In the first month she purchased $\frac{1}{2}$ of her present number shares. In the second month, she bought $\frac{2}{5}$ of her present number of shares. In the 3rd month she purchased 14 shares. How many shares of PAX did she purchase?

Let $x = \text{total \# shares}$

$$\frac{1}{2}x + \frac{2}{5}x + 14 = x \cdot 10$$

$$5x + 4x + 140 = 10x$$

$$9x + 140 = 10x$$

$$x = 140$$