

Problem of the Day: Solve the equation.  
 $3n + 7 = -10n + 20$

Plan for the Day: Integer quiz update/take new one  
 Finish notes on solving equations with rational  
 More practice with solving equations with rationals  
 Objective: We will be able to solve equations with variables on both sides with rational numbers.  
 Today is National TV Dinner Day!!

Example 1: Solve for x.

- Method 3: change fractions to whole numbers

$$\frac{1}{2}x + 4 = \frac{3}{4}x - 6$$

Example 2: Solve for x.

$$\frac{1}{5}x + 11 = \frac{3}{4}x - 20 \quad cd=20$$

$$\begin{aligned} 4x + 220 &= 15x \\ -4x &\quad -4x \\ \hline 220 &= 11x \\ \frac{220}{11} &= \frac{11x}{11} \\ \boxed{20} &= x \end{aligned}$$

Example 3: Solve for x.

$$31.2 - 0.12x = 28.62 - 0.08x$$

$$\begin{aligned} +.12x &\quad +.12x \\ \hline 28.62 &= 28.62 + .04x \\ -28.62 &\quad -28.62 \\ \hline -2.58 &= .04x \\ \frac{-2.58}{.04} &= \frac{.04x}{.04} \\ \boxed{x=64.5} \end{aligned}$$

Example 4: Solve for x.

$$1.2 + 0.45x = 0.85 + 0.5x$$

$$\begin{aligned} -.45x &\quad -.45x \\ \hline 0.75 &= .05x \\ -0.75 &\quad -0.75 \\ \hline -3.5 &= .05x \\ \frac{-3.5}{.05} &= \frac{.05x}{.05} \\ \boxed{x=7} \end{aligned}$$

Example 5: Solve for x.

$$\frac{7}{12}x + \frac{1}{2} = 3 + \frac{1}{3}x \quad cd=12$$

$$\begin{aligned} 7x + 6 &= 9 + 4x \\ -4x &\quad -4x \\ \hline 3x + 6 &= 9 \\ -6 &\quad -6 \\ \hline 3x &= 3 \\ \frac{3x}{3} &= \frac{3}{3} \\ \boxed{x=1} \end{aligned}$$

$$8. \frac{16}{5} - \frac{69}{20}x = \frac{77}{10} - \frac{6}{5}x$$