Fractional Equations
Worksheet to Accompany Videotape #7

Steps

1. Multiply each term by the common denominator for the equation
   \[ \frac{3p-1}{3} - \frac{2p}{p-1} = p \]
   
   \[ 3(p-1) \cdot \frac{3p-1}{3} - 3(p-1) \cdot \frac{2p}{p-1} = p \cdot 3(p-1) \]
   
   \[ (p-1)(3p-1) - 3 \cdot 2p = p \cdot 3(p-1) \]
   
   \[ (3p^2 - 4p + 1) - (6p) = (3p^2 - 3p) \]

2. Combine like terms
   \[ 3p^2 - 10p + 1 = 3p^2 - 3p \]
   
   \[ -7p + 1 = 0 \]

3. Solve
   \[ -7p = -1 \]
   
   \[ p = \frac{1}{7} \]

4. Check to see if the common denominator = 0 for each solution
   \[ 3(\frac{1}{7} - 1) = 3(-\frac{6}{7}) = -\frac{18}{7} \neq 0 \]
   
   So \( \frac{1}{7} \) is a solution.

Solve for the indicated letter:

1. \[ \frac{m}{2} - \frac{1}{m} = \frac{6m+5}{12} \]
2. \[ \frac{5}{2a+3} + \frac{1}{a-6} = 0 \]
3. \[ \frac{3}{2m+4} = \frac{1}{m+2} - 2 \]
4. \[ \frac{2r}{r-1} = 5 + \frac{2}{r-1} \]
5. \[ \frac{2}{x-3} - \frac{6}{x-8} = -1 \]
6. \[ \frac{5}{2x+1} + \frac{1}{x+2} = -2 \]
7. \[ \frac{x^2+2}{x-2} = 4 + \frac{3x}{x-2} \]

\( 7, \ 5, \ \frac{4}{9}, \ 3, \ -3, \ \emptyset, \ 2, \ 6, \ 5, \ -1, \ 3, \ -2, \ \emptyset \)

\( \frac{5}{12}, \ \frac{1}{2}, \ -\frac{7}{2} \)

ANSWERS: 1, 5