

<p><b>Extraneous Solutions:</b> When you multiply or divide an equation by an expression containing variables, the resulting equation may have solutions that are not solutions of the original equation</p>	<p>Solve the equation algebraically. Check for extraneous solutions.</p> <p>A) <del><math>\frac{x-5}{4} + \frac{x+2}{4} = \frac{3}{4}</math></del>  <math>\frac{3-5}{4} + \frac{3+2}{4} = \frac{3}{4}</math>  <math>\frac{-2}{4} + \frac{5}{4} = \frac{3}{4}</math></p> <p><math>x-5 + x+2 = 3</math>  <math>2x-3=3</math>  <math>2x=6</math>  <math>x=3</math></p> <p>B) <del><math>\frac{3}{x+3} = \frac{10}{x}</math></del>  <math>x^2+3x=10</math>  <math>x^2+3x-10=0</math>  <math>(x+5)(x-2)=0</math>  <math>x=-5 \quad x=2</math></p> <p>C) <del><math>\frac{3}{x-2} + \frac{10}{x} = 2</math></del>  <math>3x + 10(x-2) = 2x(x-2)</math>  <math>3x + 10x - 20 = 2x^2 - 4x</math>  <math>13x - 20 = 2x^2 - 4x</math>  <math>-13x + 20 = -2x^2 + 4x</math>  <math>2x^2 - 17x + 20</math></p> <p><math>\frac{17}{2(2)} \pm \frac{\sqrt{(-17)^2 - 4(2)(20)}}{2(2)}</math>  <math>\frac{17}{4} \pm \frac{\sqrt{289 - 160}}{4}</math>  <math>\frac{17}{4} \pm \frac{\sqrt{129}}{4}</math></p>
<p>Common denominator <math>x(x-2)</math></p> <p><math>(2x \quad )(x \quad )</math></p>	

Solve the equation algebraically. Check for extraneous solutions.

$$\text{A) } \left( \frac{2x}{x-1} \right)^{(x-1)(x-3)} + \left( \frac{1}{x-3} \right)^{(x-1)(x-3)} = \left( \frac{2}{x^2-4x+3} \right)^{(x-1)(x-3)}$$

$$2x(x-3) + (x-1) = 2$$

$$2x^2 - 6x + x - 1 = 2$$

$$2x^2 - 5x - 3 = 0$$

$$\text{B) } \frac{x-3}{x} + \frac{3}{x+2} + \frac{6}{x^2+2x} = 0$$