Algebra 2, Module 7, Lesson 3 – Solving Rational Equations Using Algebraic Methods

3. Solve the equation $\frac{5}{x}+\frac{3}{x-2}=\frac{6}{x(x-2)}$.

(A) $x=0$ *or* $x=2$

Incorrect. Neither of these values for *x* could be solutions since they both make the denominators 0.

(B) $x=2$

Incorrect. While this is the solution you get when you solve the equation algebraically, it must be excluded because it makes the denominator 0.

(C) $x=1$

Incorrect. You may have incorrectly distributed a factor during your solution. Try again.

(D) No solution

Correct. Your solution should have been similar to:

$$\frac{5}{x}+\frac{3}{x-2}=\frac{6}{x(x-2)}$$

$$x(x-2)\left[\frac{5}{x}\right]+x(x-2)\left[\frac{3}{x-2}\right]=x(x-2)\left[\frac{6}{x(x-2)}\right]$$

$$5(x-2)+3x=6$$

$$5x-10+3x=6$$

$$8x=16$$

$$x=2$$

But since 2 makes the denominator 0, it must be excluded. Therefore, there are no solutions to this equation.