

Solving Rational Expressions

Exit Quiz

Solve the following rational expression by finding the value of the unknown variable.

1. $\frac{7}{8} - \frac{16}{t-2} = \frac{3}{4}$

2. $\frac{12}{x+5} + \frac{5}{x} = \frac{20}{x}$

3. $5 - \frac{1}{x-3} = 2$

Find solution for the following rational expressions.

4. $\frac{2y-6}{y-3} = 1$

5. $\frac{2z+5}{z} = \frac{3}{2}$

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Answer:

Solve the following rational expression by finding the value of the unknown variable.

1. $\frac{7}{8} - \frac{16}{t-2} = \frac{3}{4}$

Solution:

$$8(t-2)\left(\frac{7}{8}\right) - 8(t-2)\left(\frac{16}{t-2}\right) = 8(t-2)\frac{3}{4}$$

$$7t - 14 - 128 = 8t - 16$$

$$t = 126$$

3. $5 - \frac{1}{x-3} = 2$

Solution:

$$(x-3)5 - (x-3)\left(\frac{1}{x-3}\right) = (x-3)2$$

$$5x - 15 - 1 = 2x - 6$$

$$3x = 10$$

$$x = \frac{10}{3}$$

Find solution for the following rational expressions.

4. $\frac{2y-6}{y-3} = 1$

Solution:

$$(y-3)\frac{2y-6}{y-3} = (y-3)1$$

$$2y - 6 = y - 3$$

$$y = 3$$

Checking:

$$\frac{2(3)-6}{3-3} = 1$$

$$\frac{0}{0} \neq 1$$

No solution. $\{\emptyset\}$

5. $\frac{2z+5}{z} = \frac{3}{2}$

Solution:

$$2z\left(\frac{2z+5}{z}\right) = 2z\left(\frac{3}{2}\right)$$

$$4z + 10 = 3z$$

$$z = -10$$

Checking:

$$\frac{2(-10)+5}{-10} = \frac{3}{2}$$

$$\frac{-15}{-10} = \frac{3}{2}$$

$$\frac{3}{2} = \frac{3}{2}$$

The solution is $\{-10\}$