

Solving Rational Expressions Bell Work

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

1. $\frac{x}{10} = \frac{12}{5}$

2. $\frac{4t}{3} = 15 - \frac{t}{6}$

3. $\frac{u-2}{6} + \frac{2u+5}{15} = 3$

4. $\frac{2}{u+4} = \frac{5}{8}$

5. $\frac{6}{b} + 22 = 24$

Determine whether the following value of x is a solution to the equation.

$$x = 4 + \frac{21}{x}$$

6. $x = -3$

7. $x = 7$

Find solution for the following rational expressions.

8. $\frac{1}{5} = \frac{x}{10}$

9. $\frac{8}{m} - \frac{6}{m} = 7$

10. $\frac{c+1}{2} = \frac{c+2}{3}$

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Answer:

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

1. $\frac{x}{10} = \frac{12}{5}$

Solution:

$$10\left(\frac{x}{10}\right) = 10\left(\frac{12}{5}\right)$$

$$x = 24$$

2. $\frac{4t}{3} = 15 - \frac{t}{6}$

Solution:

$$6\left(\frac{4t}{3}\right) = (6)15 - (6)\left(\frac{t}{6}\right)$$

$$12t = 90 - t$$

$$13t = 90$$

$$t = \frac{90}{13}$$

3. $\frac{u-2}{6} + \frac{2u+5}{15} = 3$

Solution:

$$30\left(\frac{u-2}{6}\right) + 30\left(\frac{2u+5}{15}\right) = 30(3)$$

$$5u - 10 + 4u + 10 = 90$$

$$u = 90$$

4. $\frac{2}{u+4} = \frac{5}{8}$

Solution:

$$8(u+4)\left(\frac{2}{u+4}\right) = 8(u+4)\left(\frac{5}{8}\right)$$

$$16 = 5u + 20$$

$$5u = -4$$

$$u = -\frac{4}{5}$$

5. $\frac{6}{b} + 22 = 24$

Solution:

$$b\left(\frac{6}{b}\right) + b(22) = b(24)$$

$$6 + 22b = 24b$$

$$2b = 6$$

$$b = 3$$

Determine whether the following value of x is a solution to the equation.

$$x = 4 + \frac{21}{x}$$

6. $x = -3$

Solution:

$$-3 = 4 + \frac{21}{-3}$$

$$-3 = 4 - 7$$

$$-3 = -3$$

7. $x = 7$

Solution:

$$7 = 4 + \frac{21}{7}$$

$$7 = 4 + 3$$

$$7 = 7$$

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Find solution for the following rational expressions.

8. $\frac{1}{5} = \frac{x}{10}$

Solution:

$$10\left(\frac{1}{5}\right) = 10\left(\frac{x}{10}\right)$$

$$x = 2$$

Checking:

$$\frac{1}{5} = \frac{2}{10}$$

$$\frac{1}{5} = \frac{1}{5}$$

9. $\frac{8}{m} - \frac{6}{m} = 7$

Solution:

$$(m)\frac{8}{m} - (m)\frac{6}{m} = (m)7$$

$$8 - 6 = 7m$$

$$m = \frac{2}{7}$$

Checking:

$$\frac{8}{2} - \frac{6}{2} = 7$$

$$7 - 3 = 4$$

$$28 - 21 = 7$$

$$7 = 7$$

10. $\frac{c+1}{2} = \frac{c+2}{3}$

Solution:

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

$$3c + 3 = 2c + 4$$

$$c = 1$$

Checking:

$$\frac{1+1}{2} = \frac{1+2}{3}$$

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

$$1 = 1$$