

Adding and Subtracting Rational Expressions Exit Quiz

Add or subtract the following rational expressions.

1. $\frac{a-1}{a+7} + \frac{8}{a+7}$

2. $\frac{7}{x-7} - \frac{x}{x-7}$

3. $7 + \frac{3}{y}$

4. $\frac{3}{y} + \frac{5}{y^2} - \frac{7}{y^3}$

5. $\frac{2}{x-5} - \frac{3}{x+6}$

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Answer:

Add or subtract the following rational expressions.

1.
$$\frac{a-1}{a+7} + \frac{8}{a+7}$$

Solution:

$$\frac{a-1}{a+7} + \frac{8}{a+7} = \frac{a-1+8}{a+7} = \frac{a+7}{a+7} = 1$$

2.
$$\frac{7}{x-7} - \frac{x}{x-7}$$

Solution:

$$\frac{7}{x-7} - \frac{x}{x-7} = \frac{7-x}{x-7} = \frac{-1(-7+x)}{x-7} = -1$$

3.
$$7 + \frac{3}{y}$$

Solution:

LCD: y

$$7 + \frac{3}{y} = \frac{7y+3}{y}$$

4.
$$\frac{3}{y} + \frac{5}{y^2} - \frac{7}{y^3}$$

Solution:

LCD: y^3

$$\frac{3}{y} + \frac{5}{y^2} - \frac{7}{y^3} = \frac{3(y^2) + 5(y) - 7}{y^3} = \frac{3y^2 + 5y - 7}{y^3}$$

5.
$$\frac{2}{x-5} - \frac{3}{x+6}$$

Solution:

LCD: $(x-5)(x+6) = x^2 + x - 30$

$$= \frac{2(x+6) - 3(x-5)}{x^2 + x - 30} = \frac{2x+12-3x+15}{x^2 + x - 30}$$

$$= \frac{-x+27}{x^2 + x - 30}$$