

Quiz – Rational Expressions and Equations

Perform the given operation. Simplify completely for full credit

$$1) \frac{x^2+5x-24}{x^2-9} \div \frac{x^2-x-6}{x+2}$$
$$= \frac{(x+8)(\cancel{x-3})}{(\cancel{x-3})(x+3)} \div \frac{(\cancel{x-3})(x+2)}{x+2} = \frac{x+8}{1} = \boxed{x+8}$$

$$2) \frac{3x}{x+2} - \frac{5}{x-2}$$
$$= \frac{3x(x-2)}{(x+2)(x-2)} - \frac{5(x+2)}{(x+2)(x-2)} = \frac{3x^2-6x}{(x+2)(x-2)} - \frac{5x+10}{(x+2)(x-2)}$$
$$= \boxed{\frac{3x^2-11x+10}{(x+2)(x-2)}}$$

$$3) \frac{x-3}{x^2+2x-8} + \frac{7}{x+4}$$
$$= \frac{\cancel{x+4}}{(x^2+2x-8)(\cancel{x+4})} = \boxed{\frac{1}{x^2+2x-8}}$$

Solve the equation

$$4) \frac{6}{x-1} \neq \frac{3}{x+2}$$

$$6x+2 = 3x-1$$
$$\begin{array}{r} -3x \\ -3x \end{array}$$

$$3x+2 = -1$$
$$\begin{array}{r} -2 \\ -2 \end{array}$$

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

$$\boxed{x = -1}$$

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