C11 - 6.1 - Simplifying Rationals WS

Simplify.

$$\frac{12x^3}{3x} =$$

$$\frac{2x + 6}{x + 3} =$$

$$\frac{x^2 + 5x + 6}{x + 2} =$$

$$\frac{x^2 - 4}{x + 2} =$$

$$\frac{x + 7}{x + 7} =$$

$$\frac{x - 2}{x^2 + 2x - 8} =$$

$$\frac{x + 3}{x^2 - 9} =$$

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

$$\frac{x^2 - 4}{4 - x^2} =$$

$$\frac{2x^2 + 5x + 3}{x + 1} =$$

$$\frac{2x^2 - 7x - 4}{2x + 4}$$

$$\frac{x^2 - 6x + 8}{x + 3} =$$

$$\frac{x - 5}{5 - x} =$$

$$\frac{2x - 2}{1 - x} =$$

$$\frac{x^2 + 5x - 6}{-x^2 - 5x + 6}$$

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

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

$$\frac{x + 2}{-2 + x} =$$

C11 - 6.2 - Restrictions Rationals WS

Determine the undefined values for x.

$$\frac{2}{x} \qquad \frac{3}{x-1} \qquad \frac{4}{x} \qquad \frac{2}{x-2} \qquad \frac{x}{2} \qquad \frac{8}{5x} \qquad \frac{x+3}{5}$$

$$x \neq 0 \qquad\qquad \begin{array}{c} x - 1 \neq 0 \\ x \neq 1 \end{array}$$

$$\frac{4}{2x+6} \qquad \frac{x+2}{2x-4} \qquad \frac{6x^2}{12x^3} \qquad \frac{5}{2-x} \qquad \frac{3}{x^2}$$

$$\frac{7}{(x-1)(x+2)} \qquad \frac{x}{(x+4)(x-3)} \qquad \frac{6}{(x+2)(x-1)} \qquad \frac{9}{(x-1)(x+1)} \qquad \frac{4}{(x+2)^2}$$

$$\frac{5}{x^2+5x+6} \qquad \frac{9x}{x^2+4x+4} \qquad \frac{3x+2}{x^2+9x-10} \qquad \frac{4}{2x^2-3x-5} \qquad \frac{9}{x^2+10x+25}$$

$$\frac{1}{x^2-1} \qquad \frac{3}{x^2-9} \qquad \frac{2x}{x^2-1} \qquad \frac{7x}{4-x^2} \qquad \frac{8}{x^2} \qquad \frac{6}{x^2+4}$$

C11 - 6.2 - Multiplying Rationals WS

Multiply, Simplify and State Restrictions. Leave answer in factored form.

$\dfrac{3}{4} \times \dfrac{1}{2} =$
$\dfrac{3 \times 1}{4 \times 2} = \dfrac{3}{8}$

$\dfrac{3}{4x} \times \dfrac{1}{2} =$

$\dfrac{3x^3}{2} \times \dfrac{4}{x^2} =$

$\dfrac{2}{5x} \times \dfrac{3x}{4} =$

$\dfrac{x + 2}{x + 1} \times \dfrac{3}{x + 2} =$

$\dfrac{2(x + 2)}{3} \times \dfrac{6}{x + 2} =$

$\dfrac{2x + 4}{x + 1} \times \dfrac{3}{x + 2} =$

$\dfrac{3}{(x - 1)} \times \dfrac{2}{(x + 2)} =$

$\dfrac{x + 1}{5} \times \dfrac{3}{(x + 1)(x - 2)} =$

$\dfrac{4}{x^2 + 5x + 6} \times \dfrac{x + 3}{9} =$

$\dfrac{x^2 - 64}{4} \times \dfrac{2}{x + 8} =$

$\dfrac{4}{x^2 - x - 6} \times \dfrac{x^2 + 5x + 6}{3} =$

$(x - 5)(x^2 - 1) \times \dfrac{1}{x^2 - 6x + 5} =$

$\dfrac{5}{x - 5} \times (5 - x) =$

$\dfrac{2x^2 - x - 6}{x + 3} \times \dfrac{x^2 - 9}{x^2 - 4}$

C11 - 6.2 - Dividing Rationals WS

Divide, Simplify and State Restrictions. Leave answer in factored form.

$\dfrac{x}{3} \div \dfrac{5}{2} =$

$\dfrac{x}{7} \div \dfrac{9}{2x^3} =$

$\dfrac{x}{2} \div \dfrac{2x^2 - 4x}{x + 3} =$

$\dfrac{3}{x^2 - 1} \div \dfrac{5}{x - 1} =$

$\dfrac{1}{x^2 + x} \div \dfrac{5}{x + 1} =$

$\dfrac{x^2 + 5x + 6}{7} \div \dfrac{(x + 2)}{4} =$

$\dfrac{3x^2 - 3}{5} \div \dfrac{6x + 6}{7}$

$\dfrac{2x^2 + 10x + 12}{5} \div \dfrac{2x + 6}{5} =$

$\dfrac{x}{6} \div \dfrac{x(x + 1)}{2} =$

$\dfrac{2x^2 - x - 6}{x + 2} \div \dfrac{x^2 - 4}{x^2 + 5x + 6}$

C11 - 6.3 - Adding Subtracting Rationals WS

Simplify

$\dfrac{2}{5} + \dfrac{1}{5} =$

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

$\dfrac{1}{2} + \dfrac{1}{4} =$

$\dfrac{1}{x} + \dfrac{2}{x} =$

$\dfrac{x}{2} + \dfrac{x}{3} =$

$\dfrac{10x}{5} - \dfrac{3x}{5} =$

$\dfrac{3x}{4} + \dfrac{3x + 2}{4} =$

$\dfrac{1}{3x} + \dfrac{3}{4x} =$

$\dfrac{1}{6x^2} + \dfrac{2}{3x} =$

$\dfrac{1}{6x} + \dfrac{2}{4x} =$

$\dfrac{x}{2} + \dfrac{1}{4x + 6} =$

C11 - 6.3 - Adding Subtracting Rationals WS

Simplify

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

$$\frac{x}{x-2} + \frac{3}{x-2} =$$

$$\frac{4x}{x+1} + \frac{4}{x+1} =$$

$$\frac{x}{x-3} - \frac{1}{x-3} =$$

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

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

$$\frac{2}{x} + \frac{5}{x+1} =$$

$$\frac{1}{x^2 + 5x + 6} + \frac{1}{x+2} =$$

$$\frac{9}{x^2 - 9} - \frac{4}{x-3} =$$

$$\frac{2}{x^2 - 1} - \frac{1}{x^2 + 2x + 1} =$$

$$\frac{x+3}{x^2 - x - 6} + \frac{3x+9}{x^2 - 4} =$$

C11 - 6.2/3 - Dividing Complex Fractions Rationals WS

Divide, Simplify and State Restrictions. Leave answer in factored form.

$$\frac{x}{3} \div \frac{5}{2} =$$

$$\frac{\frac{x}{3}}{\frac{5}{2}} =$$

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

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

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

$$\frac{\frac{x}{3}}{3}$$

$$\frac{\frac{1}{x} + \frac{5}{x}}{\frac{1}{x} + \frac{2}{x}} =$$

C11 - 6.4 - Rational Equations HW

Solve

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

$$\frac{1}{6} + \frac{1}{x} = \frac{1}{4}$$

$$\frac{20}{t} - 3 = \frac{8}{t} + 3$$

$$\frac{x}{3} - \frac{2x + 4}{2} = \frac{3}{4} + \frac{2x}{6}$$

$$\frac{1}{x} + \frac{1}{(x + 1)} = \frac{5}{6}$$

$$\frac{x}{2} + \frac{3}{x} = \frac{5}{2}$$

$$\frac{x + 3}{2} - \frac{x - 5}{3} = 4$$

$$\frac{2 - x}{3x} + \frac{1}{2} = \frac{1}{4x}$$

$$\frac{3x + 4}{x + 2} + \frac{1}{2} = \frac{5}{2x + 4}$$

$$600 - t = \frac{990}{3.\overline{3} - t}$$

C11 - 6.4 - Rational Equations HW

Solve

$$\frac{2}{x-3} = \frac{x+3}{x^2-9} - 1$$

$$\frac{3x}{x^2-4} - \frac{12}{x+2} = -1$$

$$\frac{x}{x+4} = \frac{2-x}{x^2+3x-4} + \frac{1}{x-1}$$

$$\frac{10}{x+5} - \frac{6}{x-3} = \frac{12}{x^2+2x-15}$$

$$\frac{12}{x-3} - \frac{1}{x-6} = \frac{8}{x^2-9x+18}$$