

C11 - 6.1 - Simplifying Rationals WS

Simplify.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

C11 - 6.2 - Restrictions Rationals WS

Determine the undefined values for x .

$$\frac{2}{x}$$

$$x \neq 0$$

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

$$x-1 \neq 0 \\ x \neq 1$$

$$\frac{4}{x}$$

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

$$\frac{x}{2}$$

$$\frac{8}{5x}$$

$$\frac{4}{2x+6}$$

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

$$\frac{6x^2}{12x^3}$$

$$\frac{5}{2-x}$$

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

$$\frac{7}{(x-1)(x+2)}$$

$$\frac{x}{(x+4)(x-3)}$$

$$\frac{9}{(x-1)(x+1)}$$

$$\frac{4}{(x+2)^2}$$

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

$$\frac{3x+2}{x^2+9x-10}$$

$$\frac{4}{2x^2-3x-5}$$

$$\frac{9}{x^2+10x+25}$$

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

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

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

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

$$\frac{8}{x^2}$$

$$\frac{6}{x^2+4}$$

C11 - 6.3 - Multiplying Rationals WS

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

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

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

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

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

$$\frac{1}{x+2} \times (x+2) =$$

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

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

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

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

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

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

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

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

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

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

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

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

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

C11 - 6.3 - Dividing Rationals WS

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

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

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

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

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

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

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

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

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

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

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

C11 - 6.4 - Adding Subtracting Rationals WS

Simplify

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

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

$$\frac{1}{3} + \frac{1}{6} =$$

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

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

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

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

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

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

$$\frac{1}{a} + \frac{1}{b} =$$

$$\frac{1}{a} + \frac{1}{ab} =$$

$$\frac{1}{ab} + \frac{1}{abc} =$$

$$\frac{1}{ab} + \frac{1}{ac} =$$

$$\frac{1}{a} + \frac{1}{a^2} =$$

$$\frac{1}{a^2} + \frac{1}{ab} =$$

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

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

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

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

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

$$\frac{x}{3} + \frac{1}{3x + 6} =$$

$$\frac{1}{2(x - 2)} - \frac{1}{2}$$

C11 - 6.4 - Adding Subtracting Rationals WS

Simplify

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

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

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

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

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

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

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

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

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

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

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

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

C11 - 6.4 - Bedmas Complex Fractions Rationals WS

Simplify

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

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

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

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

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

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

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

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

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

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

C11 - 6.5 - Rational Equations HW

Solve

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

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

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

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

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

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

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

$$600 - t = \frac{990}{3.3 - t}$$

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

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

C11 - 6.5 - Rational Equations HW

Solve

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

$$\frac{2}{x - 3} = \frac{x}{x^2 - 9} - \frac{11}{16}$$

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

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

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

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

C11 - 6.6 -Hoses filling Pool

Two hoses together fill a pool in 4 hours. If only hose A is used, the pool fills in 6 hours. How long would it take to fill the pool if only hose B were used?

Two hoses together fill a pool in 8 hours. If only hose A is used, the pool fills in 12 hours. How long would it take to fill the pool if only hose B were used?

C11 - 6.7 - Sum of Recips of Two Consecutive Ints HW

The sum of the reciprocals of two consecutive integers is $\frac{13}{42}$. What are the integers?

The sum of the reciprocals of two consecutive odd integers is $\frac{8}{15}$. What are the integers?

The sum of the reciprocals of three consecutive integers is $11/6$. What are the integers?

C11 - 6.8 - Rationals Word Problems: Canoe Table

Mary paddles down river 40km with a current of 6km/h. It takes her the same time to paddle up river 16km. What is the speed of the boat?

	Speed	Distance	Time
Down-river	$v_b + 6$	40	t
Up-river	$v_b - 6$	16	t

