2.7 Solving Rational Equations

Mult → Frac

$\frac{5}{24} + \frac{7}{32}$

Warm-up

① $\frac{3}{4} + \frac{5}{4} = \frac{8}{4}$

$= 2$

② $\frac{2}{5} \cdot \frac{2}{3} + \frac{4}{5} \cdot \frac{3}{3}$

$\frac{10}{15} + \frac{12}{15} = \boxed{\frac{22}{15}}$

③ $7\left(\frac{8}{7} - \frac{x}{7} = 1\right)$

$8 - x = 7$

$\boxed{x = 1}$

$\dfrac{8}{7} - \dfrac{x}{7} = \dfrac{7}{7}$

Steps

① Find a Common Denominator and Multiply Through

② Simplify & Solvski

③ Check for Extraneous Solutions.

False

Ex 2

$x\left(2x + \dfrac{12}{x} = 11\right)$

$2x^2 + 12 = 11x$ $2x^2 - 11x + 12 = 0$

$(2x - 3)(x - 4)$

$x = \frac{3}{2}, 4$

Ex 3

$x-4\left(x + \dfrac{1}{x-4} = 0\right)$

$x(x-4) + 1 = 0$

$x^2 - 4x + 1 = 0$

$\dfrac{4 \pm \sqrt{16-4}}{2} = \dfrac{4 \pm 2\sqrt{3}}{2}$

$= \boxed{2 \pm \sqrt{3}}$

Ex 4 U

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

$1 + 2(x-2) = 3x$

$1 + 2x - 4 = 3x$

$\boxed{-3 = x}$

Ex 5

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

$x(x+4)\left(2 - \dfrac{3}{x+4} = \dfrac{12}{x(x+4)}\right)$

$2(x^2+4x) - 3x = 12$ $x \neq -4, 0$

$2x^2 + 5x - 12 = 0$

$$(2x-3)(x+4) = 0$$
$$x = 3/2, \; -4$$