Section 4.3: Rational Equations

have = signs

ex1: $\frac{x-1}{15} = \frac{2}{5} \cdot 15$

$x - 1 = 6$

CD: 15

$x = 7$

ex2

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

CD: $(x+2) \times 5$

$5x(x+2)$

$15x - 5(x+2) = x+2$

$15x - 5x - 10 = x + 2$

$10x - 10 = x + 2$

$9x = 12$

$x = 12/9 = 4/3$

ex 3

$$\frac{10}{x(x-2)} + \frac{4}{x} = \frac{5}{x-2}$$

$x(x-2)$ $\quad x(x-2)$

$$10 + 4(x-2) = 5x$$
$$10 + 4x - 8 = 5x$$
$$4x + 2 = 5x$$
$$2 = x$$

$x = 2$

not in domain

ex: 4

$$\frac{x}{x-2} + \frac{1}{x-4} = \frac{2}{x^2-6x+8}$$

$(x-2)(x-4)$ $\quad (x-2)(x-4)$ $\quad (x-4)(x-2)$

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

$$x(x-4) + x - 2 = 2$$
$$x^2 - 4x + x - 2 = 2$$
$$-2 \qquad -2$$
$$x^2 - 3x - 4 = 0$$
$$(x-4)(x+1) = 0$$

$x = 4$ $\quad x = -1$

not in domain