

(Ex1)

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

$$\frac{x}{x-2} - \frac{2}{x+3} = \frac{10}{(x+3)(x-2)} \quad | \cdot (x+3)(x-2)$$

$$x \neq 2, -3$$

$$x(x+3) - 2(x-2) = 10$$

$$x^2 + x - 6 = 0$$

$$(x+3)(x-2) = 0$$

$$x = -3 \text{ or } x = 2$$

check restrictions

\therefore no solutions

(Ex2)

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

$$x \neq -\frac{3}{2}, \frac{2}{3}$$

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

$$3x^2 - 3x - 2x + 2 = 2x^2 + 3x + 4x + 6$$

$\underbrace{-3x - 2x}_{-5x} \qquad \underbrace{3x + 4x}_{7x}$

$$x^2 - 12x - 4 = 0$$

$$x = \frac{12 \pm \sqrt{144 + 16}}{2}$$

$$= \frac{12 \pm \sqrt{160}}{2}$$

$$= \frac{12 \pm 4\sqrt{10}}{2}$$

$$\therefore x = 6 \pm 2\sqrt{10}$$

Ex 3

$$\frac{x^2+x-2}{x^2-1} = 0$$

$$x \neq \pm 1$$

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

$$(x+2)(x-1)=0$$

$$x = -2 \text{ or } x = 1$$

(reject)

$$\therefore x = -2$$

Ex 4

$$\frac{2}{2x-1} + \frac{1}{1-x} = 0$$

$$x \neq \frac{1}{2}, 1$$

$$\frac{2(1-x) + 1(2x-1)}{(2x-1)(1-x)} = 0$$

$$\frac{1}{(2x-1)(1-x)} = 0$$

$$1 = 0$$

?

\therefore no solutions

a) $1+x+\frac{4}{x}=\frac{9}{x-1}$

$x = -2$ or
 $x = 1 \pm \sqrt{3}$

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

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

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

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

b) $\frac{|x-1|}{x+1}+\frac{x+2}{|x-2|}=3$

$x = 5, 1, \frac{-2}{5}$