

$$e) \frac{x^2 - 100}{x^2 - 25} \div \frac{x - 10}{x - 5}$$

$$\frac{(x+10)(\cancel{x-10})}{(x+5)(\cancel{x-5})} \cdot \frac{\cancel{x-5}}{\cancel{x-10}} = \frac{x+10}{x+5}$$

$$m) \frac{5}{x^2 - 4x - 12} - \frac{1}{6-x}$$

$$\frac{5}{(x-6)(x+2)} \oplus \frac{1(x+2)}{(x-6)(x+2)}$$

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

$$\frac{x+7}{(x-6)(x+2)}$$

$$2) \quad \frac{x^3 - x}{14} \cdot \frac{4}{2x - 2}$$

$$\frac{x(x^2 - 1)}{14} \cdot \frac{4}{2(x - 1)}$$

$$\frac{x(x+1)(\cancel{x-1})\cancel{4}}{\cancel{2} \cdot \cancel{8} (x-1)}$$

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

OR

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

$$o) 2x^2 = 6 - 11x$$

$$2x^2 + 11x - 6 = 0$$

$$(2x - 1)(x + 6) = 0 \Rightarrow 2x - 1 = 0, \quad x + 6 = 0$$

$2x = 1$ $x = -6$

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

$$p) x^2 = 17x$$

$$x^2 - 17x = 0$$

$$x(x - 17) = 0 \Rightarrow x = 0, \quad x - 17 = 0$$

$x = 17$

$$g) \frac{x}{x+9} + \frac{9}{9-x} = \frac{x^2 + 81}{x^2 - 81}$$

$$\frac{x(x-9)}{(x+9)(x-9)} - \frac{9(x+9)}{(x-9)(x+9)} = \frac{x^2 + 81}{(x+9)(x-9)}$$

$$\cancel{x^2} - 9x - 9x - \cancel{81} = \cancel{x^2} + 81$$

$$-18x = 162$$

$$x = -9$$

ϕ

↑ EXTRANEOUS SOLUTION

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

$$x-1 + 3 = x^2$$

$$x+2 = x^2$$

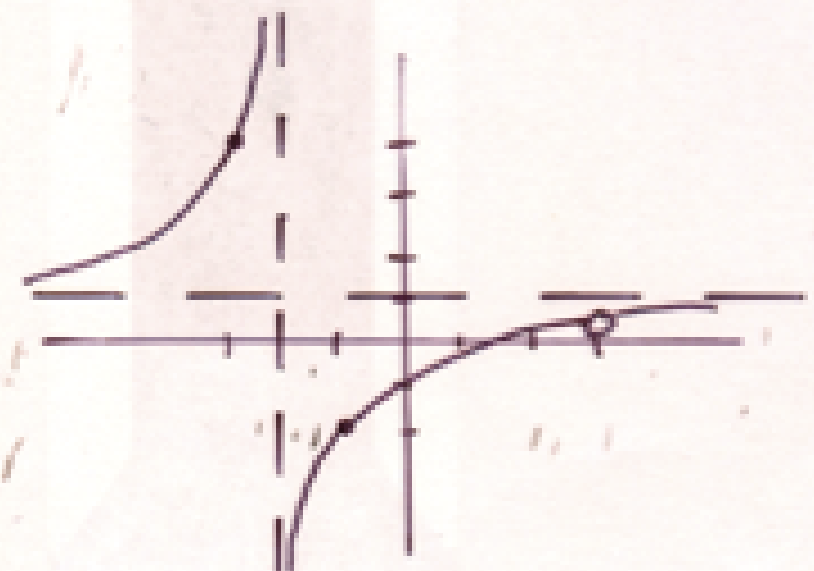
$$0 = x^2 - x - 2$$

$$0 = (x-2)(x+1) \rightarrow \begin{matrix} x=2 \\ x=-1 \end{matrix}$$

$$5) f(x) = \frac{x^2 - 4x + 3}{x^2 - x - 6} = \frac{(x-1)(x-3)}{(x-3)(x+2)} = \frac{x-1}{x+2}, x \neq 3$$

HA: $y = \frac{1}{1}$
 $y = 1$

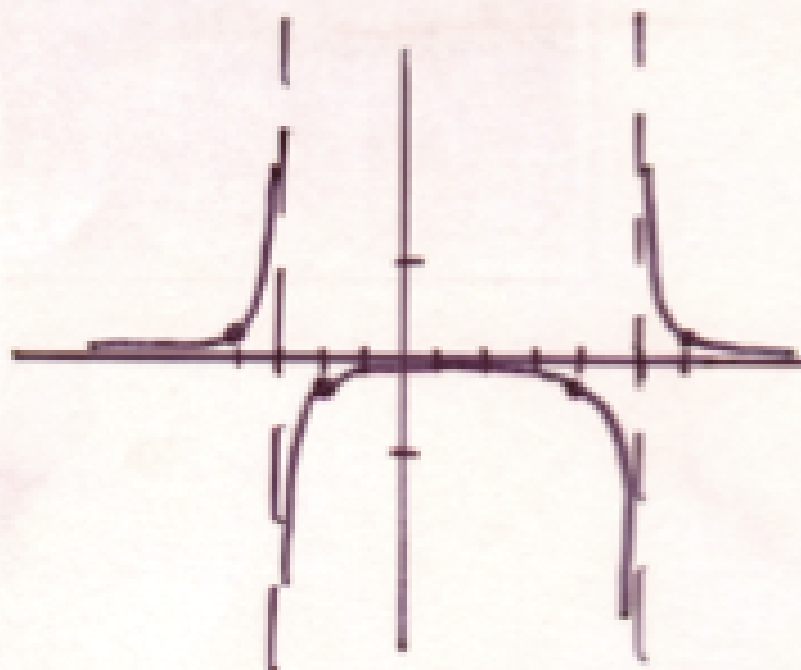
x	y
-3	4
-2	V.A.
-1	-2
3	R.D.



$$t) f(x) = \frac{1}{x^2 - 2x - 15} = \frac{1}{(x-5)(x+3)}$$

$$\text{HA: } y = 0$$

x	y
-4	$\frac{1}{9}$
-3	v. A.
-2	$-\frac{1}{7}$
4	$-\frac{1}{7}$
5	v. A.
6	$\frac{1}{9}$



u) $x = \text{HRS SINCE MATH CLASS}$
 $y = \text{MINS TO DO HW}$

$$y = kx$$

$$20 = 8k$$

$$2.5 = k$$

$$\Rightarrow \boxed{y = 2.5x}$$

DIRECT: $y = kx$

$$y = 2.5(36) = \text{90 min.}$$

v) $V = \text{VOLUME OF GAS (ft}^3\text{)}$
 $P = \text{PRESSURE OF GAS (psi)}$

$$V = \frac{k}{P}$$

$$720 = \frac{k}{23}$$

$$16,560 = k$$

$$\Rightarrow \boxed{V = \frac{16,560}{P}}$$

INVERSE: $y = \frac{k}{x}$

$$46 = \frac{16,560}{P}$$

$$46P = 16,560$$

$$P = 172.5 \text{ psi}$$

