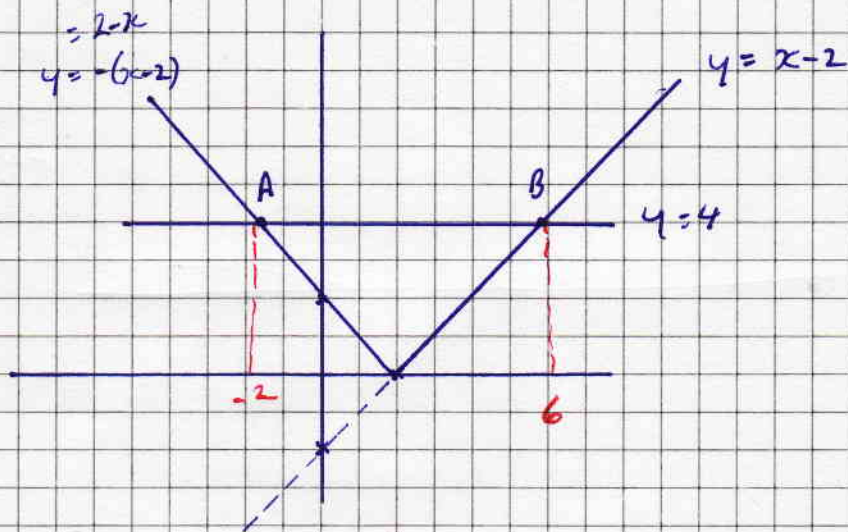


Ex 1C

① $|x-2| > 4$

$y = x - 2$



@A $2-x = 4$

$x = -2$

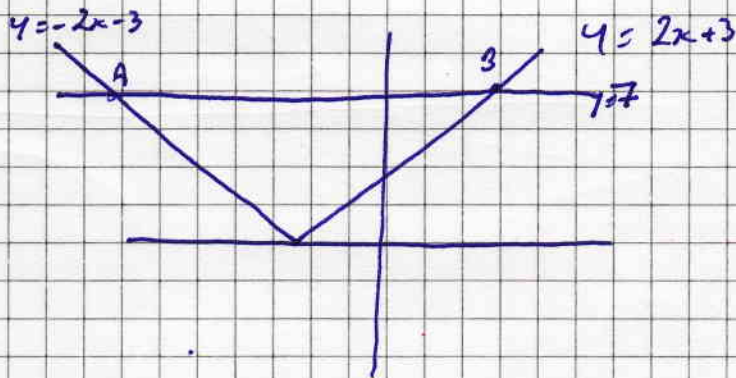
@B $x-2 = 4$

$x = 6$

$x < -2$ or $x > 6$

② $|2x+3| < 7$

Solusikan between + below A + B



$-2x - 3 = 7$

$-2x = 10$
 $x = -5$

$2x + 3 = 7$

$x = 2$

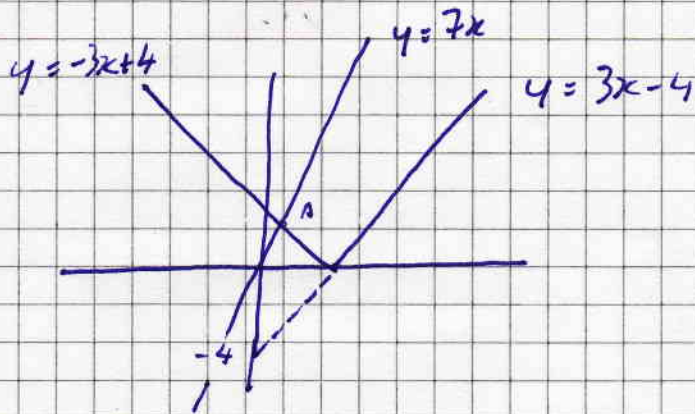
$\therefore -5 < x < 2$

③ $|3x-4| > 7x$

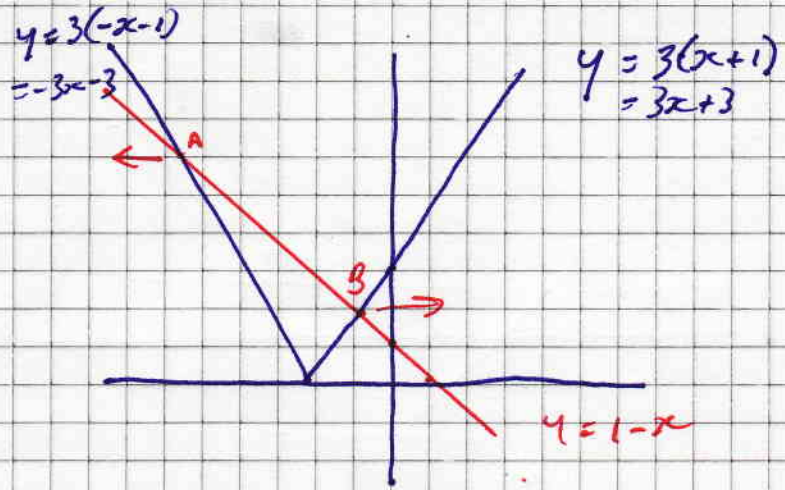
@A: $-3x+4 = 7x$

$x = \frac{4}{10}$

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



④ $3|x+1| \geq 1-x$

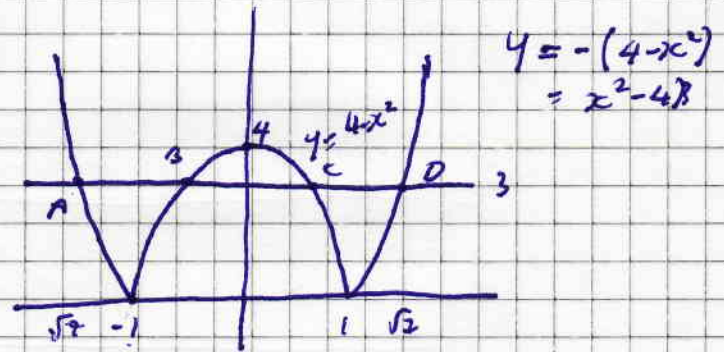


@A $-3x-3 = 1-x$
 $-2x = 4$
 $x = -2$

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

$\therefore x \leq -2$ or $x \geq -\frac{1}{2}$

⑤ $|4-x^2| \leq 3$



A+D @ $x^2-4 = 3$
 $x^2 = 7$
 $x = \pm\sqrt{7}$

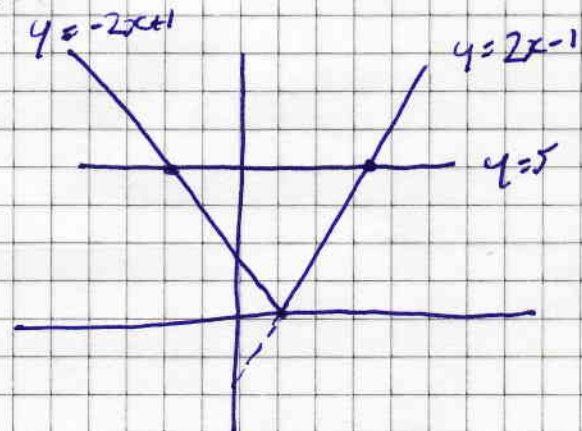
B+C @ $4-x^2 = 3$
 $x^2 = 1$
 $x = \pm 1$

$\therefore -\sqrt{7} \leq x \leq -1$ or $1 \leq x \leq \sqrt{7}$

⑥ Intersect @ $(x+1) + (x-2) = 5$
 $2x-1 = 5$
 $x = 3$

and @ $-(x+1) - (x-2) = 5$
 $-2x+1 = 5$
 $x = -2$

$-2 \leq x \leq 3$



$$7) \left| \frac{2x}{x-2} \right| < 1$$

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

$$2x = x - 2$$

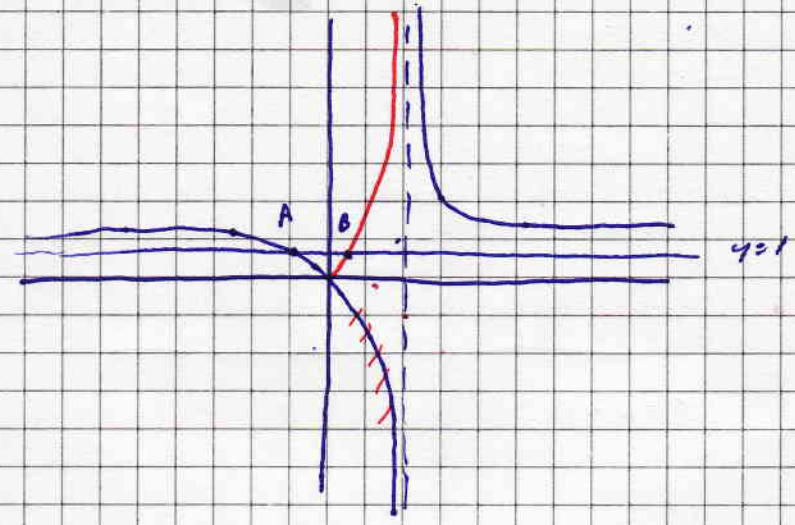
$$x = -2$$

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

$$-2x = x - 2$$

$$-3x = -2$$

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



Solution is between A & B $\therefore -2 < x < \frac{2}{3}$

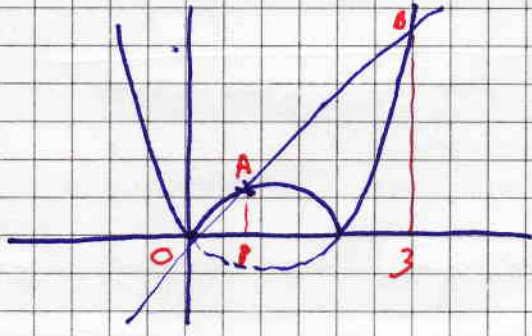
$$8) |x^2 - 2x| < x$$

$$\text{Case 1 @ } x^2 - 2x = x$$

$$x^2 - 3x = 0$$

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

$$x = 0, x = 3$$



$$\text{Case 2 @ } -(x^2 - 2x) = x$$

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

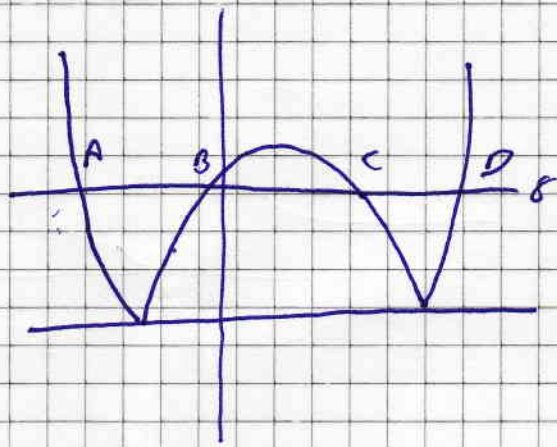
$$x^2 - x = 0$$

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

$$x = 1$$

Solution between A & B $\therefore 1 < x < 3$

$$(9) |8 - 2x - x^2| < 8$$



$$\begin{aligned} @A+D \quad & -(8 - 2x - x^2) = 8 \\ & -8 + 2x + x^2 = 8 \\ & x^2 + 2x - 16 = 0 \\ & (x+1)^2 - 17 = 0 \\ & (x+1)^2 = 17 \\ & x+1 = \pm\sqrt{17} \\ & x = -1 \pm \sqrt{17} \end{aligned}$$

$$\begin{aligned} @B+C \quad & 8 - 2x - x^2 = 8 \\ & x^2 + 2x - 16 = 0 \\ & (x+1)^2 - 17 = 0 \\ & (x+1)^2 = 17 \\ & x+1 = \pm\sqrt{17} \\ & x = -1 \pm \sqrt{17} \end{aligned}$$

$$A = -1 - \sqrt{17} \quad D = -1 + \sqrt{17}$$

$$\begin{aligned} @B+C \quad & 8 - 2x - x^2 = 8 \\ & x(x+2) = 0 \\ & x = -2 \quad x = 0 \end{aligned}$$

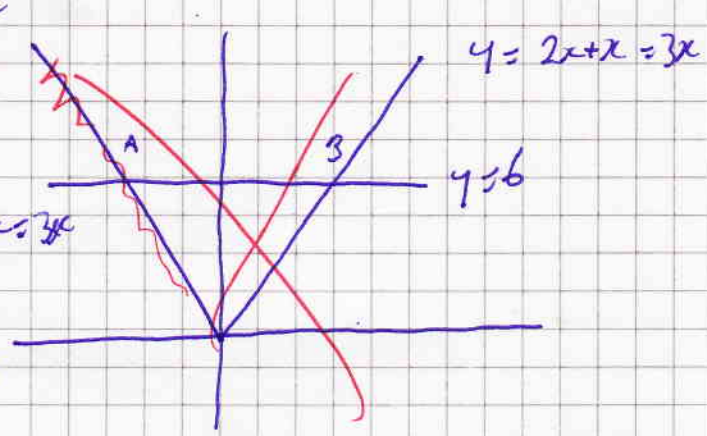
$$B = -2 \quad C = 0$$

Soluku lies between A & B and C & D

$$-1 - \sqrt{17} < x < -2 \quad \text{or} \quad 0 < x < -1 + \sqrt{17}$$

(10) $2x + |x| < 6$

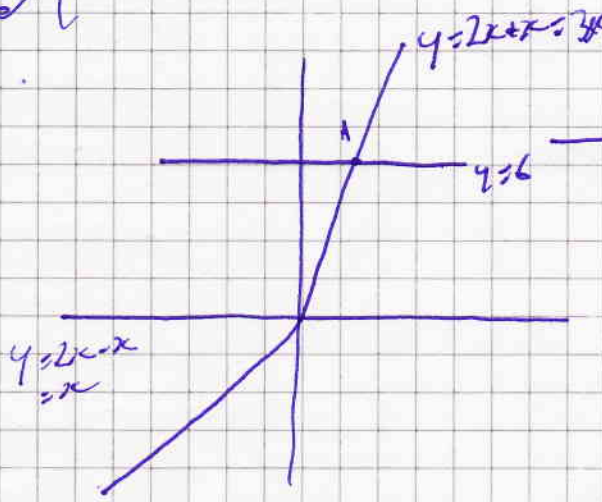
$y = 2x - x$
 $y = x$



@A $2x - x = 6$
 $x = 6$

@B $2x = 6$

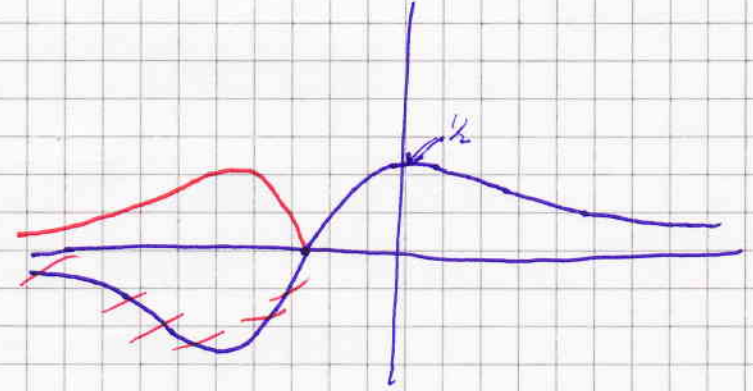
@A $3x = 6$
 $x = 2$



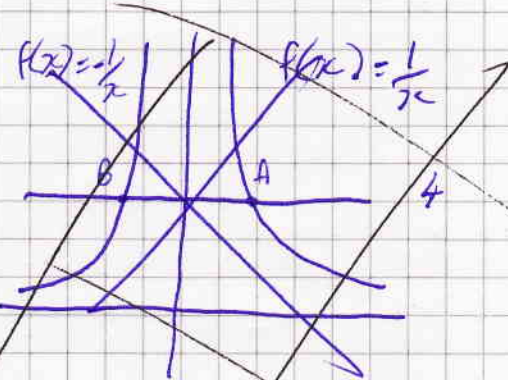
∴ $x < 2$

(11) $\left| \frac{x+1}{x^2+2x+2} \right| \leq \frac{1}{2}$

From graph, maximum value $\frac{1}{2}$



(12). (a)

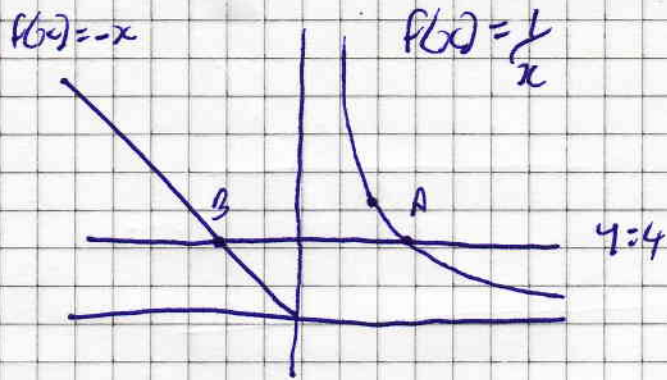


@A $\frac{1}{x} = 4$ $x = \frac{1}{4}$

@B $-\frac{1}{x} = 4$ $x = -\frac{1}{4}$

∴ $x \neq \frac{1}{4}$ or $x \leq -\frac{1}{4}$

$$(12) f(x) = \begin{cases} \frac{1}{x} & x > 0 \\ |x| & x \leq 0 \end{cases}$$



@ A $\frac{1}{x} = 4$

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

@ B $-x = 4$

$$x = -4$$

Now $f(x) \leq 4$ when $x \geq \frac{1}{4}$ or $-4 \leq x \leq 0$