

الف) $x^2 - 1 = x^2 + 1 = x - 1 = (x-1)(x^2 - 14x + 14) \neq 0$

$\Delta = (-14)^2 - 4 \times 1 \times 14 = 14^2 - 56 = 14$
 $x = \frac{14 \pm \sqrt{14}}{2} = \frac{14 \pm \sqrt{14}}{2}$
 $x = 1 \rightarrow x = \frac{14}{2} = 7$
 $x = -1 \rightarrow x = \frac{14}{2} = 7$
 $x = 1 \rightarrow x = \frac{14}{2} = 7$
 $x = -1 \rightarrow x = \frac{14}{2} = 7$
 $D_f = \mathbb{R} - \{1, 7, \frac{14}{2}\}$

ب) $x^2 - x - 1 = (x+1)(x^2 - 14x - 14) \neq 0$

$\Delta = (-1)^2 - 4 \times 1 \times (-14) = 1 + 56 = 57$
 $x = \frac{-1 \pm \sqrt{57}}{2} = \frac{-1 \pm \sqrt{57}}{2}$
 $x = 1 \rightarrow x = \frac{-1 \pm \sqrt{57}}{2}$
 $x = -1 \rightarrow x = \frac{-1 \pm \sqrt{57}}{2}$
 $D_f = \mathbb{R} - \{1, -1, \frac{-1 \pm \sqrt{57}}{2}\}$

الف) $x^2 - 1 > 0 \rightarrow x > 1 \text{ or } x < -1$

$x - \sqrt{1-x} \neq 0 \rightarrow x \neq 1-x \rightarrow x \neq \frac{1}{2}$

$D_f = (-\infty, \frac{1}{2}) \cup (\frac{1}{2}, \infty)$

ب) $x^2 - 1 > 0 \rightarrow x > 1 \text{ or } x < -1$

$x - \sqrt{1-x} \neq 0 \rightarrow x \neq 1-x \rightarrow x \neq \frac{1}{2}$

$D_f = [\frac{1}{2}, +\infty) \cup (-\infty, -\frac{1}{2}]$

الف) $\cos x - 1 \neq 0 \rightarrow \cos x \neq 1 \rightarrow x \neq 2k\pi$

ب) $\sin x + 1 \neq 0 \rightarrow \sin x \neq -1 \rightarrow x \neq -\frac{\pi}{2} + 2k\pi$

ج) $\cot x - 1 \neq 0 \rightarrow \cot x \neq 1 \rightarrow x \neq \frac{\pi}{4} + k\pi$

$D_f = \mathbb{R} - \{2k\pi, -\frac{\pi}{2} + 2k\pi, \frac{\pi}{4} + k\pi\}$

د) $\sin x - 1 \neq 0 \rightarrow \sin x \neq 1 \rightarrow x \neq \frac{\pi}{2} + 2k\pi$

هـ) $x^2 - 2x + 4 > 0 \rightarrow x = 1, x = 2$

الف) $x^2 - 2x + 4 > 0 \rightarrow x = 1, x = 2$

ب) $x^2 - 4x + 4 < 0 \rightarrow x = 1, x = 2$

ج) $x^2 + 4x + 4 > 0 \rightarrow x = -1, x = -2$

د) $x^2 - 4x + 4 < 0 \rightarrow x = 1, x = 2$

هـ) $x^2 - 4x + 4 < 0 \rightarrow x = 1, x = 2$

الف) $x^2 - 4x + 4 < 0 \rightarrow x = 1, x = 2$

ب) $x^2 - 4x + 4 < 0 \rightarrow x = 1, x = 2$

ج) $x^2 - 4x + 4 < 0 \rightarrow x = 1, x = 2$

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ج) $x^2 - 4x + 4 < 0 \rightarrow x = 1, x = 2$

د) $x^2 - 4x + 4 < 0 \rightarrow x = 1, x = 2$

هـ) $x^2 - 4x + 4 < 0 \rightarrow x = 1, x = 2$

الف) $x^2 - 4x + 4 < 0 \rightarrow x = 1, x = 2$

ب) $x^2 - 4x + 4 < 0 \rightarrow x = 1, x = 2$

Exercice 1)

x	-1	0	1
$x^2 - x$	+	+	+
$x^2 + x$	+	-	+
$P(x)$	+	-	+

$$\frac{x - f(x)}{f(x)} \geq 0$$

$$x - f(x) = 0$$

$$x = f(x)$$

$$x = -1, 1$$

$$f(x) = 0$$

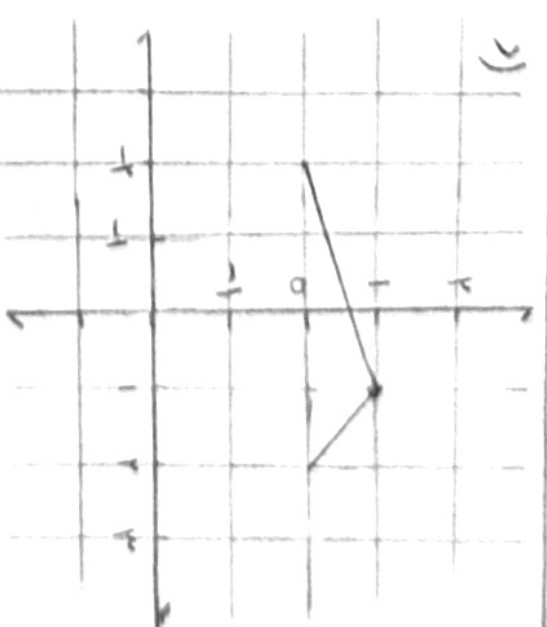
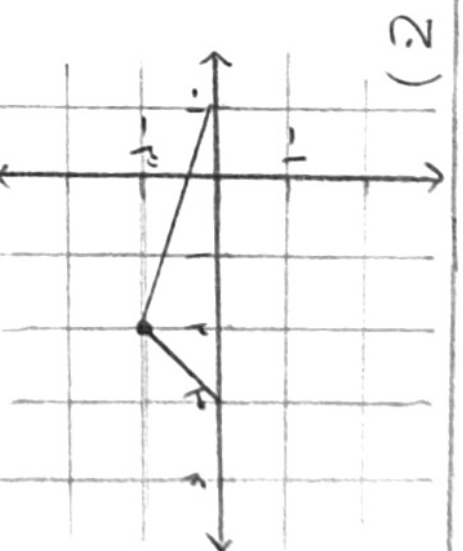
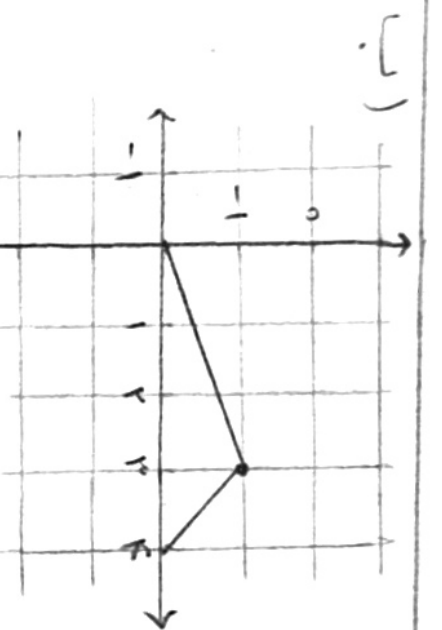
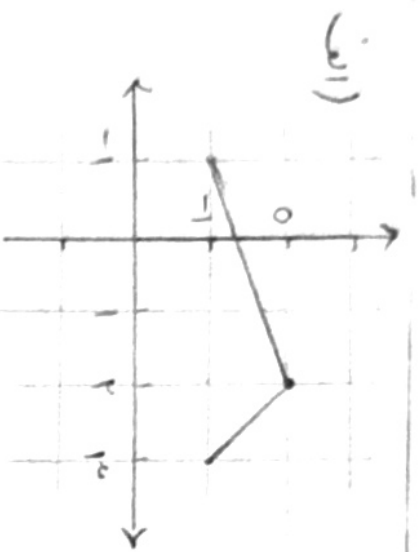
$$x = -1, 1$$

Exercice 2)

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

$$D_f = (-1, -1] \cup (1, 1]$$

x	-1	1	2
$x^2 - x$	+	+	+
$x^2 + x$	+	-	+
$P(x)$	+	-	+



(9)

(10)