

الف) $\{(1,2)(2,5)(3,1)(4,2)(5,1)\}$ $n^2 - n = 2$ $n^2 - n - 2 \geq 0$
 $(n-2)(n+1) = 0$
 $\sqrt{n=2}$ $n=-1$ $(-1,2)$
 $m=2$

ب) $f = \{(1,2)(2,5)(3,1)(4,2)(5,1)\}$
 $m=2$ $a=-1$ $n=1$

$f(x) = \begin{cases} x-1 & x \geq 1 \\ x+a & x < 1 \end{cases}$ $x+a < 2 \Rightarrow x < 1$ $a < 1$

$f(x) = \begin{cases} x-1 & x \geq 1 \\ ax+a-1 & x < 1 \end{cases}$ $a-1 < 2$ $a < 3$
 $a \in (0, 3)$

الف) $y = x^2 + 2$
 $x \leq y^2 + 2$
 $y^2 = x - 2 \Rightarrow y = \sqrt{x-2}$

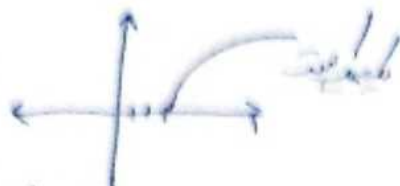
ب) $y = x^2 - 5x + 2$ $\frac{x}{y} \leq 2$
 $et \mid x - 1 + 2 \leq 2$
 $y \leq x - 1$

الف) $y = \frac{x+1}{x-2}$ $x \leq 2$ $y = 0$
 $y = 0$

ب) $y = \frac{x+1}{x-2} = 2$
 $y = 2$

الف) $\frac{x+1}{y-2} = x$ $y = \frac{x+1}{x-2}$

$$y = \sqrt{x-c}$$



$$x = y^2 + c \quad y = \sqrt{x-c}$$

$$f(x) = x + \sqrt{x} \quad f^{-1}(x) = a + b - \sqrt{x-c}$$

$$a + b + c = ?$$

$$y = x + \sqrt{x} + \frac{1}{x} - \frac{1}{x} \Rightarrow y = (\sqrt{x} + \frac{1}{x})^2 - \frac{1}{x} \Rightarrow x = (\sqrt{y} + 1)^2 - \frac{1}{y} \Rightarrow x = \frac{1}{y} (\sqrt{y} + 1)^2$$

$$\sqrt{x + \frac{1}{x}} = \sqrt{y} + 1 \Rightarrow \sqrt{y} = \sqrt{x + \frac{1}{x}} - 1 \Rightarrow y = x + \frac{1}{x} - \sqrt{x + \frac{1}{x}} \rightarrow \begin{matrix} a=1 \\ b=\frac{1}{x} \\ c=-\frac{1}{x} \end{matrix}$$

$$1 + 1 - 1 = 1$$

$$y = \frac{x}{\sqrt{x^2-1}} \Rightarrow \frac{x_1}{\sqrt{x_1^2-1}} = \frac{x_2}{\sqrt{x_2^2-1}} \Rightarrow \frac{x_1^2}{x_1^2-1} = \frac{x_2^2}{x_2^2-1}$$

$$x_1^2 x_2^2 - x_1^2 = x_1^2 x_2^2 - x_2^2 \Rightarrow x_1^2 = x_2^2 \Rightarrow x_1 = x_2$$

$$x = \frac{y}{\sqrt{y^2-1}} \Rightarrow \frac{y^2}{y^2-1} = \frac{x^2}{x^2-1} \Rightarrow y^2(x^2-1) = x^2(y^2-1) \Rightarrow y^2 x^2 - y^2 = x^2 y^2 - x^2 \Rightarrow -y^2 = -x^2 \Rightarrow y = x$$

$$f^{-1}(x) = \frac{x}{1+|x|} \quad g(x) = \sqrt{x} - 1$$

$$g^{-1}(t) = t \quad g(t) = \frac{t}{\sqrt{t}} \quad y(t) = \sqrt{t} - 1 = \frac{t}{\sqrt{t}} \quad \sqrt{t} = \frac{t}{\sqrt{t}} \quad t = \frac{t^2}{t} \quad t = \frac{t^2}{t}$$

$$f^{-1}(\frac{1}{2}) = 2 \quad f(2) = \frac{1}{2} \quad f^{-1}(x) = \frac{x}{1+|x|} = \frac{1}{2} \quad 2 = \frac{1}{1+|2|} = \frac{1}{3} \quad 2 < \frac{1}{3}$$

$$\frac{1}{10} - \frac{1}{10} = \frac{10-10}{10} = \frac{-10}{10} \quad \frac{10-10}{10} = \frac{-10}{10} \quad \frac{10-10}{10} = \frac{-10}{10}$$

$$f^{-1}(x) = \sqrt{x-1}$$

$$g(x) = f(x) + \sqrt{f(x)}$$

$$x = \sqrt{y-c}$$

$$g(x) = \frac{x^2+1}{x} + \sqrt{x^2+1} \Rightarrow x^2+1 = t^2 \quad \frac{x^2+1}{x} = \frac{t^2-1}{t}$$

$$f(x) = x^2+1$$

$$t = \frac{1 \pm \sqrt{1+4x}}{2} \Rightarrow x = \frac{1 \pm \sqrt{1+4x}}{2}$$

$$g^{-1}(x) = \sqrt{\frac{x+1}{2}} - 1 = g^{-1}(x) = \sqrt{1+x}$$