

نام و نام خانوادگی: ... با استفاده از تشریحی تکلیف شماره ... کلاس ...

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

ب) $f = \{(1,1)(2,0)(3,1)(4,2)(5,3)\}$
 $m = 2$ $a = -1$ $n = 1$

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

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

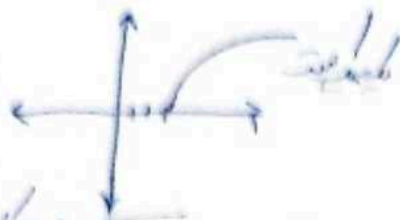
الف) $y = x^2 + 2$
 $x \leq y^2 + 2$
 $y^2 = x - 2 \Rightarrow y = \sqrt{x-2}$

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

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

ب) $y = \frac{x+1}{x-2} = 2$
 $x+1 = 2(x-2)$
 $x+1 = 2x-4$
 $x = 5$

الف) $y = \sqrt{x-c}$



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

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

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

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

$1 + 1 - 1 = 1$

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

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

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

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

$f(\frac{1}{\sqrt{2}}) = 2$ $f(2) = \frac{1}{\sqrt{2}}$ $f(x) = \frac{x}{1+|x|} = \frac{1}{\sqrt{2}} \Rightarrow x = \frac{1}{\sqrt{2} - 1} = \frac{\sqrt{2} + 1}{2 - 1} = \sqrt{2} + 1$

$\frac{1}{\sqrt{2}} - \frac{1}{\sqrt{2}} = \frac{1}{\sqrt{2}} - \frac{1}{\sqrt{2}} = \frac{1}{\sqrt{2}}$ $\frac{1}{\sqrt{2}} - \frac{1}{\sqrt{2}} = \frac{1}{\sqrt{2}}$

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

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

$x = \frac{y}{\sqrt{y-1}}$

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

$f(x) = x + 1$

$t = \frac{1 \pm \sqrt{1+t^2}}{t}$

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