

(14,0)

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نقطه داره

ف (f(x)) = ? $\rightarrow F(\frac{x}{y}) = \cot \frac{x \times \frac{y}{x}}{x} = x \times \frac{1}{y} = \cot \frac{x}{\frac{y}{x}} = \frac{\sqrt{y}}{\frac{x}{y}} = \sqrt{y}$ (سوال 1)

$f(\sqrt{x}) = \sqrt{(x)^{x+1}} = \sqrt{x+1} = y$ (2)

ان 1) $f(\sin \frac{\pi}{x}) \rightarrow \sin(\frac{\pi}{x}) = \frac{y \cos \frac{\pi}{x}}{x} = \frac{y}{x}$ (سوال 2)

$F(\frac{1}{x}) = \sqrt{\frac{x-1}{x}} = \sqrt{\frac{x}{x}}$ (3)

ب) $F(\sin \sqrt{x}) \rightarrow \sin(\sqrt{x}) = \frac{\sqrt{x} (1 + \sqrt{x})}{(1 - \sqrt{x})(1 + \sqrt{x})}$

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

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

$\sin(f(\frac{x}{y})) \rightarrow f(\frac{x}{y}) \xrightarrow{f(x) = \sin x} \sin \frac{x}{y} = \frac{\sqrt{y}}{x}$ (سوال 3)

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

ان 1) $g(x) = f(x, y, z) = f(1, 2, 3) = f(2, 3, 1) = f(3, 1, 2)$ $\frac{\sqrt{1}}{2} = \frac{1}{2}$

ب) $f(x) = \sin$

ج) $f(x) = \sin$

د) $g(x) = f(x, y, z) = f(1, 2, 3) = f(2, 3, 1) = f(3, 1, 2)$ (سوال 4)

$f \circ g \rightarrow f(g(x))$ $(f \circ g) \in f(g(x)) \rightarrow f(g(x)) = x$ (سوال 1)
 $g(x) = x$ $\rightarrow x = a$ $\rightarrow a = x$

$(f(x)) \in g(f(x)) \rightarrow y$ $\therefore f(x) = 1$ $b = 5$
 $g(x) = b \rightarrow x$

$f(f(x)) = x + 1$ $\xrightarrow{\text{ضعف}} a x + b$ $x + 1$ (سوال 2)

$f(x) = -1$
 $a(ax + b) + b = x + 1$
 $a^2 x + a(b + b) = x + 1$
 $a^2 = 1$ $a = \pm 1$ $a(b + b) = 1$
 $2b = 1 \Rightarrow b = \frac{1}{2}$
 $-2b + b = -1$ $-b = -1$ $b = 1$
 $g(-1) = -x - 1 = -1$
 $f(-1) = -1$ $x = -1$
 $g(-1) = x + 1 = -1$ $x = -1$
 $x + 1 = -1$ $x = -2$

ان) $f\left(\frac{x+1}{x-1}\right) = x + 1 \rightarrow \frac{x+1}{x-1} = x + 1 = 1x + 1$ (سوال 3)
 $\downarrow$
 $f(x) = \frac{f(x+1)}{\frac{x+1}{x-1}} + 1$
 $x = -1 + 1 = 0$ (1)

ب) $f\left(\frac{x+1}{2}\right) = x + \frac{1}{2}$

$15 \times 180^\circ \div 360^\circ = 120^\circ$ $g(f(x)) = 0$

$g(x) = x \sqrt{2}$

$g(x) = \sqrt{5} \rightarrow x = 5$

$f(x) = 1 \rightarrow x = 1$ $1 - 1 = 0$ (3)