

ف (f(x)) = ? → F(x) = cot x × x' = x × 1/x = cot x =  $\frac{\sqrt{3}}{1} = \sqrt{3}$  (سوال 1)

f(√x) = √(x+1) = √3+1 = 2

ان 1) f(θ(x)) → θ(x) =  $\frac{2 \cos^2 \frac{x}{2}}{x} = \frac{2}{x}$  (سوال 2)

F(x) =  $\sqrt{\frac{x-1}{x}} = \sqrt{\frac{2}{2}}$

ب) F(θ(√x)) → θ(√x) =  $\frac{\sqrt{2}(1+\sqrt{x})}{(1-\sqrt{x})(1+\sqrt{x})}$

$\frac{\sqrt{2}+2}{-1}$  θ(√x) = -(√x+2)

f(√x+2) = 1 - (√x+2) = -x

(سوال 3)

θ(f(x)) → f(x)  $\xrightarrow{f(x)=\sin x}$  sin x =  $\frac{\sqrt{2}}{2}$

θ(√x) =  $\frac{\sqrt{2}}{2} \times \sqrt{1-\frac{\sqrt{2}}{2}} = \frac{\sqrt{2}}{2} \times \frac{1}{\sqrt{2}} = \frac{1}{2}$

ان 1) θ(x) = P(x, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12)  $\frac{\sqrt{1}}{2} = \frac{1}{2}$

2) θ(x) = 5

3) f(x) = 5

د) θ(x) = P(x, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12)

(سوال 4)

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

$g(x) = x$   
 $\rightarrow x = a \rightarrow a = x$

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

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

$f(x) = -1$

$a(ax + b) + b = x + 1$

$a^2x + a(b + b) = x + 1$

$a^2 = 1$

$a = \pm 1$

$a(b + b) = 1$

$2b = 1 \rightarrow b = \frac{1}{2}$

$-2b + b = -b = -\frac{1}{2}$

$g(-1) = -x - 1 = -1$

$f(-1) = -1$

$g(-1) = x + 1 = -1$

$x = -1$

$x = -1$

$x + 1 = -1$

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

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

$x - 1 = -1 - 1$

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

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

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

$f(x) = 0$

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

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

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

$f(x) = 1 \rightarrow x = 1$   $\frac{x-1}{x-1} = 1$