

۲. آزمون خوب نوشتی

۱) $f(\omega) = 1 \text{ if } a < 1$
 $f(x) = 1 \text{ if } a < x$

$1 \text{ if } a + 1 < 2a - 1 + a \Rightarrow 1 \cdot a > -1$
 $a > -1$



۲)

$t = \sqrt{2-2\sqrt{3}} \quad f = \sqrt{2+2\sqrt{3}}$

$(2-\sqrt{3})(2+\sqrt{3}) = 1$

$f(t) + f(f) = 2f(t)$

$t \cdot f = 1$
 $\sqrt{t} = \frac{1}{\sqrt{f}}$

$t^2 + f^2 = 2$

$(t+f)^2 = 2+2 = 4$

$t+f = \sqrt{4}$

$f(2-\sqrt{3}) + f(2+\sqrt{3}) = 2+2\sqrt{3}$



۳)

$2f(x) - 3f(-x) = 4x^2 - 4$

$\Rightarrow -5f(x) = 4x^2 + 4$

$2f(x) - 3f(x) = 4x^2 + 4$

$f(x) = -4x^2 - \frac{4}{x}$



۴)

$x=0 \Rightarrow 2f(0) = 3m-1$

$x=-1 \Rightarrow 6f(0) = 1 \cdot 0 + 0$

$x=1 \Rightarrow 2f(0) = 4m-3$

$1 \cdot 0 + 0 = 4m-3 \Rightarrow m = \frac{3}{4}$

$2f(0) = \frac{3 \cdot 3}{4} - 1$

$f(0) = \frac{5}{8}$



۵)

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

$a=2 \quad b=-12 \quad b=-6$

$f(x) = 2x - 6 \Rightarrow f(-1) = -2 - 6 = -8$
 $f(1) = -9$



۶)

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

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

$x \leq 1$

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

باید برابر بود



۷) $f(x) = x\sqrt{x} \Rightarrow x > 0$
 $g(x) = \sqrt{x^3}$

۸) $f(x) = [\sqrt{x} - \sqrt{x}] \Rightarrow x \geq 0$

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

$x-|x| \geq 0 \Rightarrow x \geq |x| \Rightarrow x \geq 0$

دستگاه ها برابرند



9) الف) $\left(\frac{f+g}{f-g} \right) (1)$

$f(1) = 2$
 $g(1) = 1$
 $\Rightarrow \frac{2+1}{2-1} = 3$

ب) $\left(\frac{f+g}{f-g} \right)(2)$ $f(2) = 4$ $g(2) = 4$ $\frac{4+4}{4-4} = \frac{8}{0}$ تعريف
نشده

ج) $f(\cdot)g(\cdot)$ $g(\cdot) = \cdot$
 $g(-1) = 1$ $\Rightarrow 1 = 1$ ✓ D

1.) $g(a) = f(\mu_{n-1})$ $\mu_{n-1} = 1 \Rightarrow n = 1$ $\mu_{n-1} = 2 \Rightarrow n = 2$ $g(1) = f(1) = 1$
 $g(a) = f(\mu_{n-1})$ $\mu_{n-1} = 1 \Rightarrow n = 1$ $\mu_{n-1} = 2 \Rightarrow n = 2$ $g(2) = f(1) = 1$
 $g = \{ (1, 1), (2, 1), (\frac{1}{\mu}, 1), (-\frac{1}{\mu}, 2), (\frac{1}{\mu}, -1) \}$ $g(\frac{1}{\mu}) = f(1) = 1$ $g(-\frac{1}{\mu}) = f(2) = 1$
 $g(\frac{1}{\mu}) = f(1) = 1$ $g(-\frac{1}{\mu}) = f(2) = 1$ $g(\frac{1}{\mu}) = f(1) = 1$ $g(-\frac{1}{\mu}) = f(2) = 1$

c) $h(a) = f(|u|)$

$$|a| = 2 \Rightarrow \pm 2 \quad |a| = 1 \Rightarrow \pm 1 \quad h(2) = 1 \quad h(3) = -1$$

$$|a| = -1 \quad x \quad |a| = \mu \rightarrow \pm \mu \quad h(-1) = 1 \quad h(1) = -1$$

$$h\{(x, 1), (-x, 1), (0, a), (x, -1), (-x, -1)\} \stackrel{h(\cdot), a}{\sim}$$