

$$r f(a) = f(-r) + a \rightarrow r(a+1)(v) = r^2 a - \varepsilon^2 a^2 \Rightarrow 14a + 14 = r^2 a - \varepsilon$$

سوال 1

$$r a = -14 \Rightarrow a = -14$$

$$f(u) = \sqrt{u} + \frac{1}{\sqrt{u}} + r \quad f\left(\frac{r-\sqrt{r}}{A}\right) + f\left(\frac{r+\sqrt{r}}{B}\right) = ? \rightarrow A+B = \varepsilon$$

$$AB = \varepsilon - r^2 = 1$$

$\Rightarrow$

$$f(A) + f(B) = \sqrt{A} + \frac{1}{\sqrt{A}} + r + \sqrt{B} + \frac{1}{\sqrt{B}} + r$$

$$= \sqrt{A} + \sqrt{B} + r + \sqrt{B} + \sqrt{A} + r$$

$$= r(\sqrt{A} + \sqrt{B}) + \varepsilon$$

$$\Rightarrow f(A) + f(B) = r\sqrt{4} + \varepsilon$$

$$(\sqrt{A} + \sqrt{B})^2 = A + B + 2\sqrt{AB}$$

$$\varepsilon = 4$$

$$\Rightarrow \sqrt{A} + \sqrt{B} = \sqrt{4}$$

سوال 3

$$r f(u) f_1 = \varepsilon u^3 - u \quad \xrightarrow{u=1} \quad u - u^3 = (u-1)f_1 - r f(u) f_1 = \varepsilon u^3 - u$$

$$\begin{aligned} \varepsilon f(u) - 4 f_1 - (u-1)f_1 - r f(u) f_1 &= u - u^3 = \varepsilon u^3 - u \\ - 9 f_1 f_1 + 4 f_1 + (u-1)f_1 + r u^2 + r u &= \varepsilon u^3 - u \end{aligned}$$

$$f(u) = -\varepsilon u^3 - \frac{u}{2}$$

سوال 3

$$(u+r)f(u) - r u f(u+r) = \varepsilon u^3 - u u^2 + r^2 u - 1$$

$$\begin{aligned} u=0 &\rightarrow r f(0) = r^2 u - 1 \quad \xrightarrow{u=0} \quad r f(0) = 9u - u^3 \\ u=-r &\rightarrow r f(0) = 14 + 2u \end{aligned}$$

$$r f(0) = 9u - u^3 \Rightarrow 9u - u^3 = 14 + 2u$$

$$f(0) = \frac{r^2}{2}$$

$$\Rightarrow r f(0) = 1 - \frac{1}{r} \quad f(0) = \frac{r^2}{2} \quad \Rightarrow \frac{1}{r} = \frac{3}{2}$$

$$u_1 = u_3 \quad \frac{1}{b} = \frac{3}{2} = \frac{9}{2}$$

$$f(u) + f\left(\frac{1}{u}\right) = \frac{3u^3 - 12u + 3}{u} \Rightarrow f(u) + f\left(\frac{1}{u}\right) = 3u - 12 + \frac{3}{u}$$

سوال ٥

$$\begin{aligned} a &= 3 & f(u) + f\left(\frac{1}{u}\right) &= au + b + \frac{a}{u} < \\ b &= -9 & f\left(\frac{1}{u}\right) &= \frac{a}{u} + b \end{aligned}$$

$$f(u) = 3u - 9 \rightarrow f(-1) = -3 - 9 = -9$$

التي تسمى هناك $u = -1$ في عبارت اول تراه، صميم.

$$\begin{cases} f(u) = (u-1)\sqrt{1-u} \\ g(u) = -\sqrt{(1-u)^3} \end{cases}$$

سوال ٩

$$\begin{aligned} f(u) &= -(1-u)\sqrt{1-u} \\ g(u) &= -(1-u)^{\frac{3}{2}} \end{aligned}$$

$$\Rightarrow f(u) = g(u)$$

سوال ٧

$$\begin{cases} f(u) = u\sqrt{u} & 0 < u < \infty & f(u) = u^{\frac{3}{2}} \\ g(u) = \sqrt{u^3} & 0 < u < \infty & g(u) = u^{\frac{3}{2}} \end{cases} \Rightarrow f(u) = g(u)$$

$$\begin{cases} f(u) = [\sqrt{u} - [\sqrt{u}]] \\ g(u) = \sqrt{u-1} \end{cases} \rightarrow$$

سوال ٨

$$f(u) = g(u)$$

سوال ٩

$$\text{الف) } \left[\frac{f+g}{f-g} \right] (1) \xrightarrow{f(1)=2, g(1)=1} \frac{2+1}{2-1} = 3$$

$$\text{ب) } \left(\frac{f+g}{f-g} \right) (2) \xrightarrow{f(2)=3, g(2)=3} \frac{3+3}{3-3} = \text{تعريف في سورد}$$

$$\text{ج) } f(0)g(-1) \xrightarrow{f(0)=0, g(-1)=1} 0 \times 1 = 0$$

$$g(n) = f(n-1) \Rightarrow g(n) = \left\{ (1, 1), (0, 2), \left(\frac{1}{3}, \omega\right), \left(-\frac{1}{3}, 2\right), \left(\frac{2}{3}, -1\right) \right\}$$

سأله ١٥

$$h(n) = f(n+1) \Rightarrow h(n) = \left\{ (-2, 1), (2, 1), (0, \omega), (3, -1), (-3, -1) \right\}$$