

$$2f(\omega) = f(-2) + a$$

$$2(a+1)(\omega+1) \rightarrow 2(\omega a + \omega) = 1fa + 1f = 3a - f + a$$

$$1fa - 3a - a = -f - 1$$

$$1.a = -1 \quad \boxed{a = -\frac{1}{\omega}} \quad \text{پ}$$

$$2 - \sqrt{3} = A$$

$$2 + \sqrt{3} = B$$

$$(A+B)^2 = (2-\sqrt{3}) + (2+\sqrt{3}) + 2 = f + 2 = 4$$

$$A \times B = 1$$

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

$$\frac{1}{\sqrt{2-\sqrt{3}}} + \frac{1}{\sqrt{2+\sqrt{3}}} = \sqrt{4}$$

$$\boxed{f + 2\sqrt{4}} \quad \text{پ}$$

$$2f(m) - 3f(-n) = f n^2 - n$$

$$2f(-n) - 3f(m) = f n^2 + n$$

$$f(m) - 4f(-n) = 1n^2 - 2n$$

$$4f(-n) - 4f(m) = 12n^2 + 2n$$

$$-5f(m) = 10n^2 + n$$

$$\boxed{f(m) = -f n^2 - \frac{n}{5}} \quad \text{پ}$$

$$2f(0) = 3m - 1$$

$$\frac{1\omega + \omega m}{4} = \frac{3m - 1}{2 \times 2}$$

$$\frac{1\omega + \omega m}{4} = \frac{3m - 1}{4}$$

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

$$\frac{3 \times \frac{9}{2} - 1}{2} = \frac{12\omega}{2}$$

$$1\omega + \omega m = 3m - 1$$

$$m = \frac{9}{2} \quad 11 = f_m$$

$$m = -2 \rightarrow 4f(0) = 14 + 2m + 3m - 1 \rightarrow 4f(0) = 1\omega + \omega m \rightarrow f(0) = \frac{1\omega + \omega m}{4}$$

$$f(m) + f\left(\frac{1}{m}\right) = \frac{3m^2 - 12m + 3}{m}$$

$$f(-1) + f(-1) = \frac{3 \times 1 + 12 + 3}{-1} = -18$$

$$2f(-1) = -18$$

$$\boxed{f(-1) = -9} \quad \text{پ}$$

$f(u) = (u-1)\sqrt{1-u}$ $1-u \geq 0 \Rightarrow u \leq 1$
 $g(u) = -\sqrt{(1-u)^3}$ $(1-u)^3 \geq 0 \Rightarrow u \leq 1$ دامنه‌ی هر دو $(-\infty, 1]$
 $\downarrow$
 $-(1-u)\sqrt{1-u} = (u-1)\sqrt{1-u}$ $f(u) = g(u)$ برابر هستند

$f(u) = u\sqrt{u}$ $u \geq 0$
 $g(u) = \sqrt{u^3}$ $u^3 \geq 0 \rightarrow u \geq 0$
 $\downarrow$
 $\sqrt{u^3} \rightarrow u\sqrt{u}$ $f(u) = g(u)$ برابر هستند

$f(u) = [\sqrt{u} - \lfloor \sqrt{u} \rfloor]$ $u \geq 0$
 $g(u) = \sqrt{u - \lfloor u \rfloor}$ $u \geq 0$
 دامنه‌ها برابر
 برابر هر دو همیشه صفر
 $f(u) = g(u)$

الف) $f(1) = 2$ $g(1) = 1$
 $\frac{f(1)+g(1)}{f(1)-g(1)} = \frac{2+1}{2-1} = 3$
 ب) $f(2) = 3$ $g(2) = 3$
 $\frac{3+3}{3-3} = \frac{6}{0}$ تعریف نشده
 ج) $f(0) = 0$ $g(-1) = 1$
 $0 \times 1 = 0$

الف) $g(u) = f(2u-1)$
 $2u-1 = 2 \Rightarrow u = 1$ $(1, 1)$
 $2u-1 = -1 \Rightarrow u = 0$ $(0, 4)$
 $2u-1 = 0 \Rightarrow u = \frac{1}{2}$ $(\frac{1}{2}, 5)$
 $2u-1 = -2 \Rightarrow u = -\frac{1}{2}$ $(-\frac{1}{2}, 2)$
 $2u-1 = 3 \Rightarrow u = 2$ $(2, -1)$
 ب) $h(u) = f(\lfloor u \rfloor)$
 فقط دردی‌های غیر منفی
 $2, 0, 3$
 $g(u) = \{ (2, 1), (-2, 1), (3, -1), (-3, -1) \}$
 $\lfloor u \rfloor = 0 \Rightarrow u = 0 \Rightarrow h(0) = f(0) = 0$
 $\lfloor u \rfloor = 2 \Rightarrow u = \pm 2 \Rightarrow h(2) = h(-2) = f(2) = 1$
 $\lfloor u \rfloor = 3 \Rightarrow u = \pm 3 \Rightarrow h(3) = h(-3) = f(3) = 1$

$g(u) = \{ (1, 1), (0, 4), (\frac{1}{2}, 5), (-\frac{1}{2}, 2), (2, -1), (-2, -1) \}$