

$$f(a) = \sqrt{1-a^2} \quad -1 \leq a \leq 1$$

$$g = \{(1,1), (0,0), (1,2)\}$$

$$g - f = \{(1,1), (0,0), (1,2)\} \Rightarrow y = 0, 1, 2$$

$$f(a) = \sqrt{1-a^2} \quad D_f = [-1, 1] \Rightarrow \text{محدوده } [0, 1] \\ g(a) = \frac{1}{2}a + 2 \quad D_g = [-\infty, \infty] \Rightarrow \text{محدوده } (-\infty, \infty) \cup [0, 1]$$

$$v = \frac{-a^2}{2} + a + 2 \quad (a+b) \Rightarrow \frac{a^2}{2} \text{ ناقص به } a$$

$$\frac{-a^2}{2} + a + 2 > \frac{1}{2} \Rightarrow \frac{-a^2}{2} + a + \frac{3}{2} > 0 \quad 1 - \frac{1}{2} \left(\frac{-1 \pm \sqrt{1-4 \cdot \frac{3}{2}}}{2} \right) + 2 \Rightarrow \frac{-1 \pm \sqrt{1-6}}{-1} > -1$$

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

$$v = |a-1| + |a-2| + |a-3| \Rightarrow \min \Rightarrow$$

$$v = |a-1| + |a-2| + |a-3| \Rightarrow \begin{matrix} 0 \Rightarrow 1+2+3=6 \\ 1 \Rightarrow 0+1+2=3 \\ 2 \Rightarrow 1+0+1=2 \\ 3 \Rightarrow 2+1+0=3 \\ 4 \Rightarrow 3+2+1=6 \end{matrix}$$

$$v = a^2 + 2a + m \quad \text{در } m \Rightarrow v \geq a^2 + 2a + m \Rightarrow a^2 + (2-v)a + m \geq 0$$

$$f(a) = \begin{cases} a^2 & a \geq 2 \Rightarrow [2, \infty) \\ a^2 - 2a + 2 & -1 \leq a < 2 \Rightarrow [1, 2) \Rightarrow [1, \infty) \\ |a| + 2 & a < -1 \Rightarrow (-\infty, -1] \end{cases}$$

$$f(a) = \begin{cases} a^2 + 2a + 2 & a \leq -1 \Rightarrow (-\infty, -1] \\ [2a] - 2a & a > 0 \Rightarrow [0, \infty) \end{cases} \Rightarrow D_f = [-1, \infty)$$

$$v = \frac{1}{a+1} - \sqrt{2a+2} \quad \text{محدوده } [b, \infty) \quad a, b \in \mathbb{R} \quad \frac{1}{a+1} \geq -2$$

$$2a+2 \geq 0 \Rightarrow a \geq -1 \Rightarrow \frac{1}{a+1} \geq -2 \Rightarrow a \geq -1$$

$$f(a) = 2\sqrt{2a+2} \quad a \leq -1 \quad D_f = D_g \quad 2a+2 \geq 0 \Rightarrow a \geq -1$$

$$f(a) + g(a) = 2\sqrt{2a+2} + 2\sqrt{1-a} \Rightarrow \sqrt{(2a+2)^2 + (1-a)^2} + 2\sqrt{1-a}$$

$$\frac{f(a)}{g} \Rightarrow \frac{\sqrt{2a+2}}{2} + \frac{2\sqrt{1-a}}{2} + \frac{f(a)}{2} - (\sqrt{2a+2} + \sqrt{1-a})$$