

$$y \leq \sqrt{mf(m)}$$

$$mf(m) \geq 0$$

$$\rightarrow m, f(m) = \text{علامت}$$

(۲)

$$m_{\text{منفی}} = [-5, 0]$$

$$m_{\text{مثبت}} = [2, \infty] \rightarrow \text{دامنه} = [-5, 0] \cup [2, \infty)$$

$$\sqrt{\frac{-m}{f(m)}}$$

$$\frac{-m}{f(m)} \geq 0$$

$$m \text{ منفی} \rightarrow m \leq -3$$

$$m \text{ مثبت} \rightarrow m \geq 2$$

$$\text{دامنه} = (-3, 0) \cup (0, 2)$$

$$= \text{مجموعه صفر}$$

(۳)

$$f(m) \text{ منفی}$$

$$-4 \quad -3 \quad 0 \quad 2 \quad 5$$

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

$$f(2) = ? \rightarrow f(m) - 2f(2) = m^2 - 3m + 4 \rightarrow -f(2) = 2$$

$$f(2) = -2$$

$$f(-2) = ? \quad f(-2) - 2f(2) = (-2)^2 - 3(-2) + 4$$

$$f(-2) + 4 = 14 \rightarrow \boxed{f(-2) = 10}$$

(۴) ✓

$$f(m) = \begin{cases} \textcircled{1} m - \sqrt{m+4} & m > 3 \\ \textcircled{2} \sqrt{m+4} & m \leq 3 \end{cases}$$

$$\textcircled{1} = f(\omega) = \omega - \sqrt{\omega+4} = 2$$

$$\textcircled{2} = f(f(\omega)) = f(2)$$

$$f(2) = 2(2) + 3 = 7$$

$$\textcircled{2} = f(1) = 2(1) + 3 = 5$$

$$f(f(1)) = f(5)$$

$$f(5) = 2$$

(۵) ✓

$$\Rightarrow f(f(\omega)) + f(f(1)) = 7 + 2 = \boxed{9}$$



Genobar

$$f(m) = am^2 - b(m+1) \quad - a$$

$$f(m-1) - f(m) = 4m+1$$

$$f(m-1) = ? \rightarrow f(m-1) = a(m-1)^2 - b(m-1) + 1 = am^2 - 2am + a - b(m-1) + 1$$

$$f(m-1) - f(m) = -2am + a + b = 4m+1$$

$$-2a = 4$$

$$a = -2$$

$$a + b = 1$$

$$-2 + b = 1$$

$$b = 3$$

$$\Rightarrow a - b = -2 - 3 = -5$$

$$f(m) = am^2 - bm + 1$$

$$2f(3) + f(-1)$$

$$f'(2)$$

$$f(3) = 3^2 - 3(3) + 1 = 9 - 9 + 1 = 1$$

$$f(-1) = (-1)^2 - 3(-1) + 1 = 1 + 3 + 1 = 5$$

$$f(2) = 2^2 - 3(2) + 1 = 4 - 6 + 1 = -1$$

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

$$\rightarrow \frac{2(1) + 5}{1} = 7$$

$$f(m) = \begin{cases} m+1 & m \geq 1 \\ m^2 & m < 1 \end{cases}$$

$$\frac{2f(1) - 2f(-2)}{f(2)} = ?$$

$$① f(1) = 1(1) + 1 = 2$$

$$② f(-2) = 4$$

$$③ f(2) = 4 + 1 = 5$$

$$\text{جواب} = \frac{2(2) - 2(4)}{5} = \frac{4 - 8}{5} = -\frac{4}{5}$$

$$f = \{(1,4), (4,1), (1,1), (1,4)\}$$

$$\frac{f(f(f)) - f(f(1))}{f(1) - 1} = ?$$

$$f(1) = 1$$

$$f(f(f)) = f(1) = 1$$

$$f(4) = 4$$

$$f(f(4)) = f(4) = 4$$

$$f(1) - 1 = 1 - 1 = 0$$

$$\frac{1 - 4}{0} = 0$$

$$f(m) = \frac{m^p + m + 9}{m^p + m + 9}$$

$$m^p + m = (\sqrt{p} - p)^p + p(\sqrt{p} - p) = -1 \quad -9$$

$$\frac{-1+9}{-1+9} = \frac{-1}{-1} = 1$$

(p) ✓

$$f(f(\sqrt{p} - p)) = f(p) \rightarrow \frac{p+1+9}{p+1+9} = \frac{p+1}{p+1}$$

$$f(\sqrt{m}) = (\sqrt{m})^p + \frac{1}{(\sqrt{m})^p} \rightarrow f(\sqrt{m}) = m + \frac{1}{m}$$

$$(f(\sqrt{m}))^p = m^p + p + \frac{1}{m^p}$$

(p) ✓

$$(f(\sqrt{m}))^p - f(m) = (m^p + p + \frac{1}{m^p}) - (m^p + \frac{1}{m^p}) = p$$