

$$\begin{array}{c|ccccc} n & -4 & -3 & 0 & 1 & 2 \\ \hline & x & - & + & - & + & x \end{array}$$

$$\frac{-m \rightarrow 0}{f(m)} \neq 0$$

$$\frac{y - f - p_0^*}{x} = \frac{f}{x} - \frac{f}{x} + \frac{f}{x} - \frac{f}{x} + \frac{f}{x} x$$

$$Df = [-\epsilon, -\psi) \cup (\chi, \omega)$$

$$f(r) - rf'(r) = 6 - 4 + 6$$

$$-f(r) = r$$

$$f(r) = -r$$

$$f(n) + c = n^r - cn + c$$

$$f(-2) + \cancel{x} = 2 + 4 + \cancel{x} \Rightarrow f(-2) = 10$$

$$f(f(\omega)) + f(f(1)) = ?$$

$$f(\omega) = \omega - \sqrt{a} = r$$

$$f(1) = 1 + 1 = 2$$

$$\Rightarrow f(r) + f(w) = r + w + r = 9$$

2- $f(n) = an^2 - bn + c \rightarrow f(n-1) - f(n) = 4n + c$

$$\underline{\underline{n=0}} \rightarrow a+b-r=0$$

$$a \underbrace{(n-1)^r}_{n^r + 1 - r n} \cdot \overbrace{-b(n-1)}^{-bn+b} + r - an^r + bn - r = rn + r$$

$$n=1 \Rightarrow a - \cancel{a} + b = 1 \Rightarrow -a + b = 1$$

$$a - 4am + b = 4m + 4$$

$$\begin{cases} a+b=4 \\ b-a=1 \end{cases}$$

$$\begin{cases} b-a=1 \end{cases}$$

$$rb=1 \rightarrow b=\omega, a=-r \Rightarrow a-b=-r-\omega = \boxed{-\Lambda}$$

4- $f(n) = n^4 - 4n + 1$

$$\frac{yf(x) + f(-1)}{f'(x)} = \frac{x(9 - x + 1) + (1 + x + 1)}{(x - 9 + 1)^x} = \textcircled{V}$$

$$V- \frac{3f(4) - 2f(-2)}{f(2)} = \frac{49 - 1}{V} = \boxed{\frac{48}{V}}$$

$$f(4) = 12 + 1 = 13$$

$$f(-2) = 4$$

$$f(2) = V$$

$$A- \frac{f(f(4)) - f(f(2))}{f(1) - 2} = \frac{2}{4} = \boxed{0}$$

$$9- f(f(\sqrt{3} - 2)) = ? \quad f(n) = \frac{n^2 + 5n + 9}{n^2 + 4n + 6}$$

$$f(\sqrt{3} - 2) = \frac{(\sqrt{3} - 2)^2 + 5(\sqrt{3} - 2) + 9}{(\sqrt{3} - 2)^2 + 4(\sqrt{3} - 2) + 6} = \frac{1}{4} = \boxed{2}$$

$$10- (f(\sqrt{n}))^2 - f(n) = ? \quad f(n) = n^2 + \frac{1}{n^2}$$

$$f(\sqrt{n}) = n + \frac{1}{n}$$

$$\left(n^2 + \frac{1}{n^2} + 2 - n^2 - \frac{1}{n^2}\right) = \boxed{2}$$