

السؤال الثاني - ٢٠

$$f\left(\frac{x}{y}\right) = \left(1 + \frac{x}{y}\right) \times \frac{y}{x} = \left(1 + \frac{x}{y}\right) \times \frac{y}{x} = \sqrt{x}$$

$$f(\sqrt{x}) = \sqrt{(\sqrt{x})^2 + 1} = \sqrt{x+1} \quad f \circ f\left(\frac{x}{y}\right) = 2$$

$$f\left(\frac{1}{n}\right) = \sqrt{\frac{1}{n^2} + 1} \xrightarrow{\frac{1}{n} \rightarrow 0} f(0) = \sqrt{\frac{0}{0} + 1} = \sqrt{1} = 1$$

$$g\left(\frac{x}{y}\right) = 2 \cos^2 \frac{x}{y} - \frac{1}{y}$$

$$f\left(\frac{1}{y}\right) = \sqrt{\frac{1}{y^2} + 1} = \sqrt{\frac{1+y^2}{y^2}} = \frac{\sqrt{1+y^2}}{y} \quad f \circ g\left(\frac{x}{y}\right) = \frac{\sqrt{x}}{y}$$

$$g(\sqrt{x}) = \frac{\sqrt{x}}{1-\sqrt{x}} \times \frac{1+\sqrt{x}}{1+\sqrt{x}} = \frac{x+1}{1-x} = -\sqrt{x}-2$$

$$f(-\sqrt{x}-2) = \left[\frac{-\sqrt{x}-2}{-1-\sqrt{x}} \right] = -1 \quad f \circ g(\sqrt{x}) = -1$$

$$f\left(\frac{x}{y}\right) = \sin \frac{x}{y} \times \frac{y}{x} \quad g\left(\frac{x}{y}\right) = \frac{x}{y} \sqrt{1 - \frac{x}{y}} = \frac{x}{y} \times \frac{1}{\sqrt{y}} = \frac{1}{y}$$

$$1) f \circ g(x) = \{(1, 1), (2, 1), (3, 1), (4, 1)\}$$

$$2) g \circ f(x) = \emptyset \quad f(x) \notin D_g$$

$$3) f \circ f(x) = \emptyset \quad f(x) \notin D_f$$

$$4) g \circ g(x) = \{(1, 1), (2, 1), (3, 1)\}$$

$$f(2) = 2 \Rightarrow g(x) = 2 \Rightarrow g(a) = 2 \quad a = 1$$

$$g(3) = g(b) = 1 \quad f(x) = 3 \times$$

$$f(x) = b \quad (x, y) \quad f(x) = \omega^b$$

$$(a, b) = (1, 1)$$

$$f(u) = au + b \quad a(a \neq b) + b = f(u) = r \quad \begin{cases} b=1 \rightarrow r_2=1 \\ b=-1 \rightarrow r_2=-1 \end{cases}$$

$$r_2 + r_2 t = \frac{t-r}{r}$$

$$g(t) = r\left(\frac{t-r}{r}\right) - 1 = \frac{r-t-1}{r} = \frac{r-1-r}{r}$$

$$f(-1) = -1 \quad g(-1) = \frac{-r-1-r}{r} = -\frac{1}{r} = -1$$

بسرود نقطه

$$x \in D_f, \quad f(x) \in D_g$$

$$\sqrt{x+1} \neq 0$$

$$x+1 \neq 0 \rightarrow \mathbb{R}^+$$

$$x+1 \neq 1$$

$$|x| \neq |1-x|$$

$$x \neq 1-x \quad \boxed{x \neq 1}$$

$$x \neq -1 \Rightarrow x$$

$$D_{g \circ f} = (0, +\infty) - \{1\}$$

$$x \in D_f, \quad f(x) \in D_{g \circ f}$$

$$D_{g \circ f} = [0, 1]$$

$$\sqrt{1-x^2} \leq 1$$

مواقع برقرار

$$|1-x| \leq 1$$

$$\frac{x^2}{2} \leq 1$$

مواقع برقرار

$$D_{f \circ g} = [-1, 1]$$

$$1) \quad f\left(\frac{r_2+1}{r_2-t}\right) = f(x) = \frac{1x+1}{x-1} + \infty$$

$$2) \quad f\left(\frac{r_2+1}{r_2-t}\right) = \frac{r_2+1}{r_2-t} = \frac{r_2+1}{r_2-t} \quad f(x) = \frac{1x+1}{x-1} + \infty$$

$$f(x) = 1 \pm \sqrt{x} \quad x^2 \pm x = 1 \quad \boxed{x=1}$$

$$f(x) = 1 \pm \sqrt{x} \quad \boxed{x=2}$$