

[illegible]

①

$$D_4 = (-\infty, 1] \quad \checkmark$$

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U_{pe}

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$$2x + 1 = 0 \rightarrow x = -\frac{1}{2}$$

1, 2, 3

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إضافة

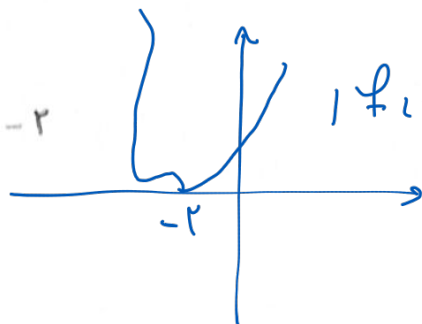
Q (1)

$$f(n) = m(n+c)^c - 1 \xrightarrow{\text{نقطة}} m < 1 \rightarrow f(n) = (n+c)^c - 1$$

سوال 10

$$f(x) = ax^r + bx + c, f'(x) = rax^{r-1} + b = 0 \rightarrow a, r, b = 0$$

$$f(-1) = -1 + a - b + c = -1 \rightarrow -1 + r - r + c = -1 \rightarrow c = -r$$



1

-1

$$f(x) = x^r + rax^{r-1} + c = (x+1)^r - 1$$

$$f(x) = 0 \rightarrow (x+1)^r = 1 \rightarrow x_{min} = \sqrt[r]{1} - 1$$

$$(n+c)^c - 1 = 0 \rightarrow n+c < 1 \rightarrow n < -r$$

$$f(x) = x + \sqrt{x} - r, f'(x) = 1 + \frac{1}{2\sqrt{x}} = 0 \rightarrow x + \sqrt{x} - r \leq \sqrt{x} - r \leq \sqrt{x} \rightarrow x \leq r$$

$$x \in \mathbb{R}, f(x) \in \mathbb{R} \rightarrow x + \sqrt{x} - r \geq 0 \rightarrow \sqrt{x} \geq r - x \rightarrow x \geq 1 \rightarrow x \in [1, r]$$

2

-1

$$\sqrt[r]{9\cos^2 x - 1} \begin{cases} \cos^2 x = 0 \rightarrow -1 \\ \cos^2 x = 1 \rightarrow r \end{cases} \quad \sqrt[r]{9\cos^2 x - 1} = r$$

$$f(x) = r - \frac{1}{r\sqrt{x}} \begin{cases} \frac{1}{\sqrt{x}} = 1 \rightarrow f(x) = -\frac{r}{r} \\ \frac{1}{\sqrt{x}} = r \rightarrow f(x) = \frac{1-r}{r} \end{cases}$$

$$R_f = [-\frac{r}{r}, \frac{1-r}{r}]$$

$$\rightarrow \frac{1-r}{r} + \frac{r}{r} = \frac{1}{r}$$

2

-9

$$f(x) = x - \ln x, r \rightarrow -r \leq f(x) < -1 \quad 0 < x - \ln x < 1$$

$$g(f(x)) = \frac{f(x) - f(x)}{r} \rightarrow f(x) = -1 \rightarrow -\frac{r}{r} \quad f(x) = -r \rightarrow -\frac{1-r}{r} \rightarrow R_{g \circ f} = [-\frac{1-r}{r}, -\frac{r}{r}]$$

2

-1