

۲۳ circles new A possible 19 مریم نوید (1 سوال)

(1/18) $g(m) = f(\tan^n n + \sqrt{r} \cos n)$ $g'(\frac{\pi}{\epsilon}) = \sqrt{r}$ $f'(r) = ?$

$\rightarrow g'(m) = (1 + \tan^n n - \sqrt{r} \sin n) f'(\tan^n n + \sqrt{r} \cos n)$

$n = \frac{\pi}{\epsilon} \rightarrow g'(\frac{\pi}{\epsilon}) = f'(1+1)(1+1-1) = f'(r) \times 1 = \sqrt{r} \rightarrow \boxed{f'(r) = \sqrt{r}}$

$f(m) = \frac{1 + \cos^2 n}{r - \cos^2 n}$ $g(m) = \frac{r}{r - \cos n}$ $f'(\frac{\sqrt{r}}{4}) = g'(\frac{\sqrt{r}}{4})$

$\rightarrow f(m) = \frac{(r + \cos n)(r + \cos^2 n - r \cos n)}{(r + \cos n)(r - \cos n)} = \frac{r + \cos^2 n - r \cos n}{r - \cos n}$

$r g(m) = \frac{r}{r - \cos n} \rightarrow f(m) - r g(m) = \frac{r + \cos^2 n - r \cos n - r}{r - \cos n}$

$\Rightarrow \frac{\cos n (\cos n - r)}{r - \cos n} = -\cos n \rightarrow \cos n = \sin n$

$\rightarrow \sin(\frac{\sqrt{r}}{4}) = \boxed{-\frac{1}{r}}$ ✓

$f(m) = (\epsilon m - r) \sqrt{a m}$ $n = \frac{r}{\epsilon}$ (۲ سوال)

$\frac{r}{\epsilon} + (\epsilon m - r) \sqrt{a m} \xrightarrow{\text{derivative}} \epsilon \sqrt{a m} \rightarrow \epsilon \sqrt{\frac{r a}{\epsilon}}$
 $\frac{r}{\epsilon} - (\epsilon m - r) \sqrt{a m} \xrightarrow{\text{derivative}} -\epsilon \sqrt{a m} \rightarrow -\epsilon \sqrt{\frac{r a}{\epsilon}}$

$\rightarrow \epsilon \sqrt{\frac{r a}{\epsilon}} = r \sqrt{4} \rightarrow \sqrt{\frac{r a}{\epsilon}} = \frac{\sqrt{4}}{\epsilon} \rightarrow \frac{r a}{\epsilon} = \frac{4}{\epsilon}$
 $\rightarrow r a = 4 \Rightarrow \boxed{a = \frac{4}{r}}$ ✓ (۲)

پایان

$$y + an = r \quad f(\varepsilon) + f'(\varepsilon) = -1 \quad f'(\varepsilon) = ? \quad (\text{سوال ٢})$$

$$\rightarrow y = -an + r \rightarrow \text{مشتق} = -a \rightarrow f'(\varepsilon) = -a \quad (٢)$$

$$n = \varepsilon \rightarrow y = -\varepsilon a + r \quad -\varepsilon a + r - a = -1 \Rightarrow -2a = -r \Rightarrow a = \frac{r}{2}$$

$$f'(\varepsilon) = -a = \boxed{-\frac{r}{2}} \quad \checkmark$$

$$Vy - n = d \quad y = \frac{an-1}{r^{n+1}} \quad a = ? \quad (\text{سوال ٤})$$

$$\rightarrow Vy = n + d \rightarrow m = \frac{1}{V}$$

$$y' = \frac{r^{an+a} - r^{an-c}}{(r^{n+1})^r}$$

$$\rightarrow \frac{r^{an+a} - r^{an-c}}{(r^{n+1})^r} \Rightarrow \frac{a+r}{(r^{n+1})^r} = \frac{1}{V} \rightarrow a = \frac{(r^{n+1})^r - 1}{V}$$

$$\frac{n}{V} + \frac{d}{V} = \frac{an-1}{r^{n+1}} \rightarrow \frac{n+d}{V} = \frac{r(r^{n+1})^r - 1}{V(r^{n+1})} \quad \checkmark$$

$$\rightarrow 4n^r + 4n^r - 10n - V = r^{n^r} + 14n + d \rightarrow 4n^r + r^{n^r} - 14n - 12 = 0$$

$$\div r \rightarrow r^{n^r} + n^r - 14n - 12 = 0 \rightarrow n^r(r^{n+1}) - f(r^{n+1}) = (n^r - 12)(r^{n+1})$$

$$\rightarrow n = r \rightarrow a = \frac{(9-12)}{V} = \boxed{-3} \quad (\text{سوال ٤})$$

$$f(n) = n^r + an + b \quad b = a$$

$$n = r \rightarrow \text{مشتق} \rightarrow f'(n) = r^{n^r} + a \xrightarrow{n=r} 12 + a = 0 \Rightarrow a = -12$$

$$f(r) = 0 \rightarrow \frac{1 - 12(r) - b}{-14} = 0 \Rightarrow b = -14 \rightarrow -14 - (-12) = \boxed{-2} \quad \checkmark$$

بابت

$$f(m) = \sin^n(x) \quad \lim_{n \rightarrow 0} \frac{f(m) f'(m)}{(1 - \cos x)^m} = \text{KVP} \rightarrow \square \quad (V \text{ ol } g \text{ u})$$

$m+n=?$ (1,0) m = \frac{v}{r} n = r m+n=9

$$f'(x) = \frac{f(m) - f(0)}{x - 0} = \frac{\sin^n(x)}{x} \xrightarrow{x \rightarrow 0} \frac{x^n}{x} = x^{n-1}$$

$\left\{ \begin{array}{l} \text{Ex: } m=1 \rightarrow n = m+1 \\ r^{m+1} \\ n = r \sqrt{r} \end{array} \right. \rightarrow r^{m+1} \times \frac{r^{m+1}}{r} = r \sqrt{r} \rightarrow (r^{m+1})^r = r \sqrt{r}$

$$\square \rightarrow \frac{\sin^n(x) x^{n-1}}{(1 - \cos x)^m} = \text{KVP} \xrightarrow{x \rightarrow 0} \frac{r^{m+1} x^{n-1}}{r^m x^{r-m}} = r^{m+1} x^{n-1} \times r^{m+1}$$

$\alpha \text{ of } \sqrt{r} = 0$
 $\epsilon n = \frac{r^{m+1}}{11} \sim n = r$

$$= \text{KVP} \Rightarrow m = \frac{11}{r}$$

$$m+n = 11 + r = \boxed{18}$$

$$f(m) = \frac{\sqrt{x+1}}{\sqrt{x-1}} \rightarrow \sqrt{x} = \frac{y+1}{y-1} \Rightarrow x = \left(\frac{y+1}{y-1} \right)^2 \quad (n \text{ ol } g \text{ u})$$

$$\Rightarrow f^{-1}(m) = \left(\frac{x+1}{x-1} \right)^2 \rightarrow (f^{-1})'(m) = r \left(\frac{-r}{(m-1)^r} \right) \left(\frac{x+1}{x-1} \right) \quad (r)$$

$$x=r \rightarrow r(-r)(r) = \boxed{-1r} \quad \checkmark$$

$$f(m) = (x^r + 1)^r (ax + 1) \quad (9 \text{ ol } g \text{ u})$$

$$x=0 \rightarrow y=1 \quad x=-1 \rightarrow y = (\Lambda)(1-a)$$

$$-11 = \frac{\Lambda - \Lambda a - 1}{-1} = \Lambda a - \Lambda = -11 \rightarrow a = \frac{-1}{r}$$

$$x = -ra \Rightarrow m = 1$$

$$f'(m) = r(x^r + 1)^{r-1} (rx) \left(-\frac{x}{r} + 1 \right) + (x^r + 1)^r \left(-\frac{1}{r} \right) \quad (r)$$

$$\rightarrow x=1 \rightarrow f'(1) = \underbrace{\left(r \times \epsilon \times r \times \frac{1}{r} \right)}_{1r} + \underbrace{(\Lambda) \left(-\frac{1}{r} \right)}_{-\epsilon} = \boxed{\Lambda} \quad \checkmark$$

بلاک

$$y = \sin \theta \cos \theta$$

$$y = \sin^2 \theta - \cos^2 \theta$$

(سوال 10)

$$\theta = \frac{\pi}{8} \rightarrow \sin \frac{\pi}{8} \cos \frac{\pi}{8} = 0$$

$$\rightarrow \sin^2 \frac{\pi}{8} - \cos^2 \frac{\pi}{8} = 0$$

$$\theta = \frac{\pi}{4} \rightarrow \sin \frac{\pi}{4} \cos \frac{\pi}{4} = -1$$

$$\rightarrow \sin^2 \frac{\pi}{4} - \cos^2 \frac{\pi}{4} = 1$$

$$y = \sin \theta \cos \theta \rightarrow \frac{-1}{\frac{\pi}{4} - \frac{\pi}{8}} = \frac{-1}{\frac{\pi}{8}} = -\frac{8}{\pi}$$

$$\frac{-\frac{8}{\pi}}{\frac{\pi}{8}} = \boxed{-1}$$

$$y = \sin^2 \theta - \cos^2 \theta \rightarrow \frac{1}{\frac{\pi}{4} - \frac{\pi}{8}} = \frac{1}{\frac{\pi}{8}} = \frac{8}{\pi}$$