

1V, 1V

$$f'(0^+) = 0$$
$$f''(0^-) = r$$

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تالیف ۲۷

$$f'(x) = r \cos(rx) x - \sin(rx) r + ra x$$

$$a+b=0$$

1

$$f''(x) = -r \sin(rx) x - \cos(rx) r + ra$$

$$ra=r$$
$$a=1$$

1/0

$$f(0^+) = 0$$

$$1+b=0 \quad b=-1$$

2



$$-rx \times rx = -1 \quad x^r = \frac{1}{r} \quad n = \frac{1}{r} \quad n = -\frac{1}{r}$$
$$-rx^r = -1 \quad x^r = \frac{1}{r} \quad n = \frac{1}{r} \quad n = -\frac{1}{r}$$
$$\frac{1}{r} - \frac{1}{r} = -\frac{r}{r}$$
$$-\frac{r}{r} - \frac{r}{r} = -\frac{4}{r} = -1.5$$

2

$$\frac{-r(a)}{(r-1)r} \quad \left| \begin{array}{l} -\frac{1}{r} \\ -1r \end{array} \right.$$

$$\frac{-ra}{r} = -1 \quad a=r$$

1/8

$$\frac{rf}{r-1} = \frac{rf}{a}$$

3

4

$$\frac{1 \times (a_{n+1}) - a(n+a)}{(a_{n+1})^r} = \frac{a_{n+1} - a - ar}{(a_{n+1})^r} = \frac{1-ar}{(a_{n+1})^r} \Rightarrow \frac{1-ar}{(a+1)^r} = \frac{(1+a)(1-a)}{(1+a)^r}$$

$$y' = r$$

$$y = r + b$$

$$-\frac{1}{r} + 1 = \frac{2}{r}$$

$$b = -1$$

$$f(x) = \frac{x - \frac{1}{r}}{-\frac{1}{r}x + 1}$$

$$\frac{1-a}{1+a} = r$$
$$1-a = r+ra$$
$$ra = -1 \quad a = -\frac{1}{r}$$

$$\frac{r}{r} \sin x = \sin x + \frac{1}{r} \cos x$$

$$-\frac{1}{r} \sin x + \frac{1}{r} \cos x \quad \frac{1}{r} (\cos - \sin) = 0 \quad \cos = \sin \quad \frac{\pi}{4}$$

5

0.1

$$f'(x) = \cos x + -\frac{1}{r} \sin x$$

$$\frac{\sqrt{2}}{2} + -\frac{1}{r} \frac{\sqrt{2}}{2} \quad \frac{\sqrt{2}}{2} - \frac{\sqrt{2}}{2} \quad \frac{\sqrt{2}}{2}$$

$$\frac{\sqrt{2}}{2} \quad \frac{\sqrt{2}}{2} \quad \frac{\sqrt{2}}{2}$$

$$4x^2 - 4x - 14 \rightarrow -1$$

$$x^2 - x - 7 \rightarrow 7$$

$$\begin{vmatrix} -1 & 7 \\ 1 & -14 \end{vmatrix} \frac{-27}{3} = -9$$

$$4x^2 - 4x - 14 = -9$$

$$4x^2 - 4x - 5 = 0$$

$$2x^2 - 2x - 1 = 0$$

$$\epsilon - f(x)(-1) = 14$$

Menius

$$\frac{2 + \sqrt{17}}{4}$$

$$\frac{2 - \sqrt{17}}{4}$$

$$f' \quad 4kn^2 + 2(k+1)x \rightarrow 4kn + 2k + 2 = 0$$

$$2kn + k + 1 = 0$$

$$\frac{-2k - 1}{4k}$$

$$\frac{2k - 1}{4k}$$

$$\frac{-1}{-0 + 0}$$

1/2 5 V

1/10

$$f' \rightarrow 3x^2 + 2ax + b$$

$$3 - 2a + b = -f$$

$$-1 + a - b - 1 = -f$$

$$a - b = -f$$

$$-2a + b = -f$$

$$-a = -a \quad a = a$$

$$b = 11$$

$$\frac{a}{b} = \frac{9}{11}$$

A

1, 1



$$x = -\frac{b}{2a} = -\frac{a}{2} \rightarrow x = -\frac{a}{2} \rightarrow \frac{-a}{2} = -1 \rightarrow a = 2$$

$$f(-1) = -2 \rightarrow -1 + 2 - b - 1 = -2 \rightarrow b = 2$$

$$\frac{a}{b} = \frac{2}{2}$$

9

$$f' \quad c = k$$

$$3m^2 + 2am + b$$

$$3m^2 + 2am = 0$$

$$m(3m + 2a) = 0$$

$$b = 0$$

$$3m^2 + 2am + f = 0$$

$$\frac{-2a \pm \sqrt{4a^2 - 12f}}{6}$$

$$\frac{2a \pm \sqrt{4a^2 - 12f}}{6}$$

min  $\checkmark$

D

$$9a^2 = 4a^2 + 12f$$

$$5a^2 = 12f$$

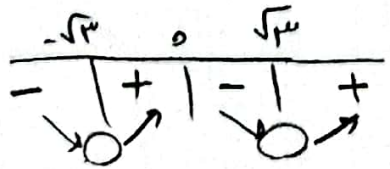
$$a = \sqrt{\frac{12f}{5}}$$

$$a = -\sqrt{\frac{12f}{5}}$$

min  $\checkmark$

$$f(x) = 14x^2 - 14x = 0$$

$$f'(x) = 28x - 14 = 0$$



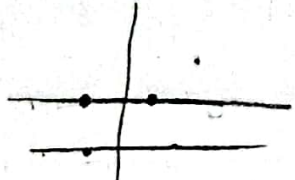
$$\begin{vmatrix} \sqrt{14} \\ -\sqrt{14} \\ 0 \end{vmatrix}$$

$$\begin{vmatrix} -\sqrt{14} \\ -\sqrt{14} \\ 0 \end{vmatrix}$$

0 = 0

$$14x^2 - 14x = 0$$

$$x = \pm 1$$



$$\lim_{n \rightarrow 0^+} \frac{f(n)}{n} = 0 \rightarrow \lim_{n \rightarrow 0^+} \frac{C \cos^2(\pi n) + a n^2 + b}{n} = 0 \rightarrow \lim_{n \rightarrow 0^+} \frac{1+b}{n} = 0 \quad -1$$

$\hookrightarrow \boxed{b = -1}$

$$\lim_{n \rightarrow 0^-} \frac{f'(n)}{n} = 2 = \lim_{n \rightarrow 0^-} \frac{-4 \sin(\pi n) C \cdot s^2(\pi n) + 2an}{n} = 2 \quad \xrightarrow{\text{سازگار}}$$

$$\lim_{n \rightarrow 0^-} \frac{(-4 \times \pi n) + 2an}{n} = 2 \rightarrow 2a - 4\pi = 2 \rightarrow 2a = 2 + 4\pi \rightarrow \boxed{a = 1 + 2\pi}$$

$$a + b = 1 + 2\pi - 1 = 2\pi$$

$$m = \frac{4 - (-12)}{2 - (-10)} = \frac{16}{12} = \frac{4}{3} \rightarrow y = \frac{4}{3}x - 4 \quad \underline{13}$$

$$\frac{a}{2n-1} = 4n-9 \rightarrow 2n^2 - 2\pi n + 9 - a = 0 \quad \Delta = 0 \rightarrow 4\pi^2 - 4(2\pi)(9-a) = 0 \rightarrow 12 - 9 + a = 0 \rightarrow a = -3$$

$$f(\Delta) = \frac{-3}{2(0)-1} = \frac{-3}{-1} = 3$$

$$f(n) = g(n) \rightarrow \sin x + \frac{1}{\pi} C \cdot \sin x = \frac{\pi}{\pi} \sin x \rightarrow \sin x = C \cdot x \quad \begin{matrix} x \leq \pi \\ x \geq \pi \end{matrix} \quad -14$$

$$f\left(\frac{\pi}{2}\right) = \sin \frac{\pi}{2} + \frac{1}{\pi} C \cdot \sin \frac{\pi}{2} = \frac{\sqrt{2}}{\pi} + \frac{\sqrt{2}}{2} = \frac{3\sqrt{2}}{2}$$

$$\boxed{x = \frac{\pi}{2}}$$

$$f(x) = C \cdot \sin x - \frac{1}{\pi} \sin x \rightarrow f'\left(\frac{\pi}{2}\right) = \frac{\sqrt{2}}{\pi} - \frac{\sqrt{2}}{2} = \frac{\sqrt{2}}{2}$$

مشتق را برابر صفر می‌گذاریم:

$$y - \frac{3\sqrt{2}}{2} = \frac{\sqrt{2}}{2} \left(x - \frac{\pi}{2}\right) \quad y = 0 \rightarrow \frac{\sqrt{2}}{2} \left(x - \frac{\pi}{2}\right) = -\frac{3\sqrt{2}}{2} \rightarrow \boxed{x = \frac{\pi}{2} - 3}$$

$$y' = 3kn^2 + 2(k+1)n \rightarrow y'' = 6kn + 2(k+1) = 0 \rightarrow n = \frac{k+1}{-3k} \quad \underline{V}$$

$$\frac{-(k+1)}{3k} < 0 \rightarrow \frac{-1}{-1+k} > 0 \rightarrow \boxed{k < -1} \quad \underline{1} \quad \leftarrow \text{نقطه‌ای عطف در ضمیمه نمود است پس}$$

$$\frac{-(k+1)}{3k} (k) + (k+1) > 0 \rightarrow \frac{-(k+1)}{3} + k+1 > 0 \rightarrow \frac{2k+2}{3} > 0 \rightarrow \boxed{k > -1} \quad \underline{2}$$

$$1 \cap 2 \rightarrow k > 0$$

به ازای هم مقدار  $k$  منفی و صحیح جواب ندارد!