

نام و نام خانوادگی: پاسخنامه تشریحی تکلیف شماره ۲۳ کلاس:
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$$\textcircled{1} g'(\frac{\pi}{2}) = (2 \times \tan \frac{\pi}{2} \times \frac{1}{\cos^2 \frac{\pi}{2}} + (-\sqrt{x} \sin \frac{\pi}{2})) \times f'(x) = \sqrt{x}$$

$$\Rightarrow 2f'(x) = \sqrt{x} \Rightarrow \boxed{f'(x) = \frac{\sqrt{x}}{2}}$$

$$\cos'(u) = -u' \times \sin u$$

$$\tan'(u) = \sec^2(u) \times u'$$

$$(f-g)' \Rightarrow \frac{1 + \cos^2 u - (2 + \cos^2 u)}{2 - \cos^2 u} = \frac{-1}{2 - \cos^2 u}$$

$$\sin \frac{\sqrt{\pi}}{4} \Rightarrow \left(\frac{1}{2}\right) \Rightarrow \text{پایه}$$

$$\frac{(2 + \cos^2 u)(2 + \cos^2 u - 2 \cos^2 u)}{2 - \cos^2 u} \Rightarrow \frac{2 \cos^2 u (2 - \cos^2 u)}{2 - \cos^2 u} \Rightarrow \boxed{2 \cos^2 u}$$

عبارت زیر مرتبه اول است و می‌تواند قدر مطلق

$$\frac{1}{2} \begin{cases} \frac{1}{2} \rightarrow (2n-1)\sqrt{an} \xrightarrow{f'} 2\sqrt{an} \\ \frac{1}{2} \rightarrow (-2n+1)\sqrt{an} \xrightarrow{f'} -2\sqrt{an} \end{cases}$$

$$\text{اقتلاف} \Rightarrow 1\sqrt{an} \Rightarrow 2\sqrt{4} \Rightarrow \sqrt{\frac{4}{16}} \Rightarrow \sqrt{\frac{1}{4}} \Rightarrow \boxed{\frac{1}{2}}$$

$$y(x) = f(x) \Rightarrow x - 2a$$

$$f'(x) \Rightarrow -a \rightarrow \text{در نقطه } x=2a \Rightarrow \frac{3}{a} = \frac{1}{2} \Rightarrow \boxed{a=6}$$

$$\frac{a_n - 1}{n+1} \Rightarrow \frac{a+1}{(n+1)^2} \Rightarrow \frac{1}{n}$$

$$\frac{a_n - 1}{n+1} \Rightarrow \frac{n}{n} + \frac{a}{n} \Rightarrow \frac{n+a}{n} \Rightarrow \frac{a_n - 1}{n+1} \Rightarrow 2n^2 + 10n + 12 \Rightarrow \sqrt{a_n} = \sqrt{12}$$

$$= (14 - 7a)n + 12 \geq 0 \Rightarrow \Delta = 0 \quad (14 - 7a)^2 - 12 \geq 0 \Rightarrow 28^2 + 29a^2 - 2 \times 28 \times 12 \geq 0$$

$$29a^2 - 224a + 112 \geq 0 \Rightarrow 29a^2 - 224a + 112 \geq 0 \Rightarrow a^2 - 7.7a + 3.86 \geq 0 \Rightarrow \boxed{a \geq 8}$$

$f(x) = \frac{a}{x} \Rightarrow 1 < a + a > 0 \Rightarrow a = -12$ $-a + b = -14 + 12 \Rightarrow -2$ $1 - 12 - b = 0 \Rightarrow b = -14$	6
<i>[Faint handwritten notes]</i>	7
$\sqrt{y} \cdot n - n \Rightarrow \sqrt{y} + 1 \Rightarrow \sqrt{y} (n-1) = n+1 \Rightarrow y = \left(\frac{n+1}{n-1}\right)^2$ $f'(n) = f^{-1}(n)$ $f^{-1}(n) \Rightarrow \sqrt{\left(\frac{-1-1}{(n-1)^2}\right) \left(\frac{n+1}{n-1}\right)} \xrightarrow{n=2} -2 \times (2) \Rightarrow -4$	8
$\frac{f(0) - f(1)}{1} \Rightarrow -11 \Rightarrow 11a - 1 \Rightarrow -11 \Rightarrow a = -\frac{1}{1}$ $f(n) \Rightarrow (n^2 + 1)^2 \left(-\frac{n}{1} + 1\right) \Rightarrow f'(n) \Rightarrow 2(n^2 + 1)(-\frac{n}{1} + 1) - \frac{1}{1}(n^2 + 1)^2$ $\rightarrow f'(1) \Rightarrow 2(2)\left(\frac{1}{1}\right) - 1 \Rightarrow 1$	9
$f(n) \Rightarrow \sin n \cos 2n$ $\frac{f\left(\frac{\pi}{4}\right) - f\left(\frac{\pi}{2}\right)}{\frac{\pi}{4} - \frac{\pi}{2}} \Rightarrow \frac{-1 - 0}{\frac{\pi}{4} - \frac{\pi}{2}} \Rightarrow \frac{-1}{-\frac{\pi}{4}} \Rightarrow \frac{4}{\pi}$ $\frac{(1)}{(2)} \Rightarrow -1 \Rightarrow \frac{-\frac{4}{\pi}}{\frac{2}{\pi}} \Rightarrow -2$ $g(n) \Rightarrow \sin^2 n - \cos^2 n \Rightarrow -\cos 2n$ $\frac{f\left(\frac{\pi}{4}\right) - f\left(\frac{\pi}{2}\right)}{\frac{\pi}{4} - \frac{\pi}{2}} \Rightarrow \frac{1 - 0}{\frac{\pi}{4} - \frac{\pi}{2}} \Rightarrow \frac{1}{-\frac{\pi}{4}} \Rightarrow -\frac{4}{\pi}$	10