

۱۱. فصلی که در فصل ۸ از آن بحث شد، فصل ۸ است.

Q

$$= \frac{\sqrt{\mu}}{\mu}$$

$$f'(\frac{\sqrt{\pi}}{4}) - g'(\frac{\sqrt{\pi}}{4}) = (f-g)'(\frac{\sqrt{\pi}}{4})$$

9

$$\frac{-1}{r}$$

(جواب میں)

$$y = \sqrt{\ln a} \rightarrow y^2 = \ln a \rightarrow \boxed{a = e^y}$$

③

Q



9

$$\lim_{x \rightarrow 0} \frac{f(x) f'(x)}{(1 - \cos x)^m} = r r \sqrt{r} \rightarrow \frac{2^{r_m} \times r \times 2^r \times (1 - \frac{2^r}{r})}{\frac{2^{r_m}}{r}} \rightarrow \frac{2^{r_{n+r}} \times \frac{r-2^r}{r} \times r}{\frac{2^{r_m}}{r}}$$

$$\sin^n(x) = x^{r_m} \rightarrow (x^{r_{n+r} + r_m}) \times (r - 2^r)$$

$$n \sin(x^r) \times \cos x = f'(x)$$

(جواب پائین سید)

$$f(x) = \frac{\sqrt{x+1}}{\sqrt{x-1}} \times \frac{\sqrt{x+1}}{\sqrt{x+1}} \rightarrow f(x) = \frac{(\sqrt{x+1})^r}{x-1} \rightarrow x = \frac{(\sqrt{y+1})^r}{y-1}$$

$$f(x) = \frac{\sqrt{x+1}}{\sqrt{x-1}} \rightarrow \sqrt{x}y - y = \sqrt{x+1} \rightarrow \sqrt{x}(y-1) = y+1 \rightarrow \sqrt{x} = \frac{y+1}{y-1} \rightarrow x = \left(\frac{y+1}{y-1}\right)^r \rightarrow y = \left(\frac{x+1}{x-1}\right)^r$$

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

$$\frac{y_0 - y_{-1}}{1} \rightarrow \begin{cases} y_0 = 1 \\ y_{-1} = 1(1-a) \end{cases} \Rightarrow 1 - y_{-1} = -11 \rightarrow y_{-1} = 12 = r \times (1-a)$$

$$1-a = \frac{12}{r} \rightarrow a = \frac{-1}{r}$$

$$f'(x) = r(x^r+1)^{r-1} \times \frac{r a x^r + r}{(a x^r+1)} + (x^r+1)^r a$$

$$\rightarrow (x^r+1)^r (r a x^r + r + a x^r + a) \rightarrow \boxed{\Sigma}$$

$$\frac{r a x^r + r}{r} = \frac{r a x^r + r}{r} + \frac{a x^r}{r} + \frac{a}{r}$$

$$\frac{r}{r} + \frac{11}{r} + \frac{1}{r} \times \frac{r}{r} = 1$$

$$f'(x) = r(x^r+1)^{r-1} (a x^r+1) + a(x^r+1)^r \xrightarrow{x=1} r(r+1)(1+1)^{r-1} \left(-\frac{1}{r} \times 1 + 1\right) + \frac{1}{r} (1+1)^r = 1$$

$$\frac{-1-a}{\frac{r}{r}} \rightarrow \frac{-r}{r} \quad \frac{dy}{dx} = \frac{dy}{dx} \Rightarrow \frac{1}{\frac{r}{r}} = 1$$

$$y = \sin^r x - \cos^r x \rightarrow -\cos^r x \rightarrow \frac{1-a}{\frac{r}{r}} = \frac{r}{r}$$

$$(1 - \cos^r x)(\sin^r x - \cos^r x)$$

سوال ۱۳

$$x \rightarrow \left(\frac{u}{r}\right)^+ \rightarrow f(u) = (r_0 - r) \sqrt{a u} \rightarrow f'(u) = r \sqrt{a u}$$

مشتق حاصل از مشتق

$$\rightarrow f'_+\left(\frac{u}{r}\right) = r \sqrt{\frac{u}{r}} a$$

$$u \rightarrow \left(\frac{u}{r}\right)^- \rightarrow f(u) = (r - r_0) \sqrt{a u} \rightarrow f'(u) = -r \sqrt{a u}$$

مشتق حاصل از مشتق

$$f'_-\left(\frac{u}{r}\right) = -r \sqrt{\frac{u}{r}} a$$

$$\rightarrow f'_+\left(\frac{u}{r}\right) - f'_-\left(\frac{u}{r}\right) = 1 \sqrt{\frac{u}{r}} a = r \sqrt{a} \rightarrow \sqrt{\frac{u}{r}} a = \frac{\sqrt{a}}{r} \rightarrow \frac{u}{r} a = \frac{a}{r} \rightarrow a = \frac{1}{r}$$

سوال ۱۴

$$\lim_{n \rightarrow \infty} \frac{\sin^n(u^r) \times n \sin^{n-1}(u^r) \times \cos(u^r) \times (r u)}{(r \sin^r \frac{u}{r})^m} \xrightarrow{\text{Simp}} \lim_{n \rightarrow \infty} \frac{(u^r)^n \times (u^r)^{n-1} \times r u}{(r (\frac{u}{r})^r)^m} =$$

$$\lim_{n \rightarrow \infty} \frac{r u^{2n+1}}{(r \frac{u^r}{r})^m} = \lim_{n \rightarrow \infty} \frac{r u^{2n+1}}{\frac{1}{r^m} u^{r m}} = \lim_{n \rightarrow \infty} r^{m+1} u^{2n+1-r m} \rightarrow \text{حاصل حد عددی متناهی غیر صفری به توان صفر}$$

$$\begin{cases} r m - 2n - 1 = 0 \rightarrow n = \frac{r m - 1}{2} \\ r^{m+1} \times \frac{r m - 1}{2} = r \sqrt{r} \rightarrow (r m - 1) r^{\frac{m+1}{2}} = r \sqrt{r} \rightarrow m = \frac{r}{r} \\ n = r \end{cases} \quad r m + n = 9$$