

سنه ۱۴۴۱-۲۰۲۰
رياضي

۵۹۱۰۷۱۶۹۴۱۲

$$S_n = \frac{a(q^n - 1)}{q - 1}, q \neq 1, q \neq 0$$

$$S_q = vr S_r \Rightarrow \frac{a(q^q - 1)}{q - 1} = \frac{vra(q^r - 1)}{q - 1}$$

$$q^q - 1 = vr(q^r - 1) \Rightarrow$$

$$q^q - 1 = (\underbrace{q^q + q^r + 1}_{vr})(q^r - 1) \Rightarrow q^q + q^r + 1 = vr$$

$$\Rightarrow q^q + q^r - vr = 0 \Rightarrow (q^r + q)(q^r - 1) = 0$$

$$\Rightarrow \begin{cases} q = -\sqrt[q]{q} \\ q = r \end{cases} \Rightarrow \frac{a_r}{a_1} = \frac{q^q q^r}{q} = q^r - 1 \quad (\text{نرینه ۲})$$

$$x^r + \frac{10}{x^r + 1} = 9 \Rightarrow x^r + 1 + \frac{10}{x^r + 1} = 10$$

$$a = x^r + 1 \Rightarrow a + \frac{10}{a} = 10 \Rightarrow a^2 + \frac{100}{a^2} + 20 = 100$$

$$\Rightarrow a^2 + \frac{100}{a^2} = 80 \Rightarrow (x^r + 1)^2 + \frac{100}{(x^r + 1)^2} = 80 \quad (\text{نرینه ۴})$$

$$\text{if } B = U \quad A \cup B' \subseteq A \cap B$$

$$\underline{B' = \emptyset}$$

$$A \cap B = A$$

$$A \subseteq A$$

(۱) نرینه

$$x^r - \alpha x + r = 0 \Rightarrow S = 0, P = r \quad (a)$$

$$\frac{r\alpha + \beta^0}{\alpha\beta^r} = \frac{1}{r} \left\{ \frac{\sum (\alpha^r + \beta^r)}{(\alpha\beta)^r} + \frac{1}{\alpha} (\alpha^r + \beta^r) \right\}$$

$$= \frac{1}{r} \left\{ \frac{\cancel{\sum}}{\alpha} \frac{90}{\cancel{\sum}} + \frac{1}{\alpha} (90) \right\} = \frac{90}{\alpha} = 19$$

(r = 19)

$$\alpha^r + \beta^r = S^r - rPS = 0^r - 19 \times 2 \times 0 = 150 - 0 = 90$$

$$\frac{r\alpha + \beta^0}{\alpha\beta^r} = \frac{1}{r} \left\{ \underbrace{\frac{\alpha}{\beta^r}}_A + \frac{1}{\alpha} \beta^r + \underbrace{\frac{\beta}{\alpha^r} + \frac{1}{\alpha} \alpha^r}_{A'} \right\}$$

$$\max f = 1 \Rightarrow \sqrt{mx^2 - 1x + 12} = 1 \Rightarrow \text{مکان ۲}$$

$$mx^2 - 1x + 12 = 0 \xrightarrow{x_5 = \frac{\Delta}{2m}} m \cdot \frac{4\Delta}{4m^2} - \frac{1 \times \Delta}{2m} = -12$$

تحقق بهترین مقدار

$$\Rightarrow \frac{12 - 12}{m} = -12 \Rightarrow m = \frac{12}{12} \times \frac{\Delta}{\Delta} \Rightarrow [m] = 1$$

نیزه ۳

$$P(x) = x^2(x^2 + a) \xrightarrow{a = -1} P(x) = x^2(x-1)(x+1) \quad (\wedge)$$

$$Q(x) = x^2(x^2 + 5x + 5) = x^2(x+1)(x+5)$$

$$\text{پ.پ.ب. : } x^2(x+1) = x^2 + x \xrightarrow{\text{مکان ۳}} \begin{matrix} n=2 \\ a=-1 \end{matrix}$$

$$\Rightarrow na = 2(-1) = -2$$

نیزه ۱

$$0 \leq x \leq 5 \Rightarrow P(x) = 0 \Rightarrow x = 1$$

$$P(x) = 1 \Rightarrow \begin{cases} x-1 = 1 \Rightarrow x = 2 \\ x+1 = 1 \Rightarrow x = 0 \end{cases} \quad (9)$$

$$-5 \leq x < 0 \Rightarrow P(x) = 0 \Rightarrow x+1 = 0 \Rightarrow x = -1$$

$$\begin{cases} x-1 = -1 \Rightarrow x = 0 \\ x+1 = -1 \Rightarrow x = -2 \end{cases}$$

دره ۵ نیزه ۳

سین الیگ بلع
نیزه ۳

$$f(a) = a \Rightarrow \lim_{x \rightarrow a} \frac{f(x)}{x} = \frac{f(a)}{a} = 1$$

(۱) (۱-۱)

$$\log r^{x+1} = (\log a - \log r)(\log a + \log r)$$

(۱۱)

$$= \log \frac{a}{r} \Rightarrow r^{x+1} = \frac{a}{r} \Rightarrow x = \frac{1}{r}$$

$$\Rightarrow \log_{\frac{1}{r}} r^{-1} = \frac{-1}{\frac{1}{r}} = -r$$

(۲) (۲-۱)

$$r \sin \alpha < r \sin \alpha \cos \alpha$$

(۱۲)

$$\Rightarrow r \sin \alpha (1 - \cos \alpha) < 0 \Rightarrow \sin \alpha < 0$$

$\cos \alpha > 0$

$$\frac{\cos \alpha}{\sin \alpha} > 0 \Rightarrow \frac{\cos \alpha}{\sin \alpha} > 0 \Rightarrow \cos \alpha > 0$$

(۳) (۳-۱)

$$\frac{\cos 15^\circ - r \sin 15^\circ}{r \sin 15^\circ + r \sin 15^\circ} = \frac{\cos 15^\circ - r \sin 15^\circ}{2 \sin 15^\circ}$$

(۱۳)

$$= \frac{1}{2} \cos 15^\circ - \frac{r}{2} = \frac{1}{2} \sqrt{2} \cos 45^\circ$$

(۴) (۴-۱)

$$\cot(15^\circ) = \cot(45^\circ - 30^\circ) = \frac{\cos(45^\circ - 30^\circ)}{\sin(45^\circ - 30^\circ)} = \frac{1 + \frac{\sqrt{3}}{2}}{1 - \frac{\sqrt{3}}{2}}$$

$$= \frac{1}{1 - \frac{\sqrt{3}}{2}} \times \frac{2 + \sqrt{3}}{2 + \sqrt{3}} = 2 + \sqrt{3}$$

$$\tan \beta = \frac{\sqrt{r}}{r}$$

(12)

$$\tan(\beta + \pi) = \frac{\sqrt{r} + \frac{\sqrt{r}}{r}}{1 - \frac{1}{r}} = \frac{\sqrt{r}}{r}$$

$$\tan \alpha = \frac{r \times \sqrt{r}}{2 \sqrt{r} \times \sqrt{r}} = \frac{1}{2} \sqrt{r} = \frac{1}{2} \sqrt{r} \quad (1 \text{ is } \sqrt{r})$$

$$\lim_{x \rightarrow 0} \frac{k + \cos(\sqrt{a}x)}{kx^r} \stackrel{r}{=} \Rightarrow k+1=0 \Rightarrow k=-1 \quad (10)$$

$$\text{H.o.P:} \quad \lim_{x \rightarrow 0} \frac{-\sqrt{a} \sin(\sqrt{a}x)}{-rx} \stackrel{0}{=} \lim_{x \rightarrow 0} \frac{-a \cos(\sqrt{a}x)}{-r} \stackrel{r}{=} \Rightarrow$$

$$\Rightarrow \frac{a}{r} = r \Rightarrow a = r^2 \Rightarrow \frac{a}{k} = \frac{+4}{-1} = -4$$

(13)

$$x = -a : \frac{a}{m} \quad -ma - r = 0 \Rightarrow m = -\frac{r}{a} \quad (14)$$

$$y = -z = \frac{a^r}{m} \Rightarrow ar = \frac{a^r}{m} \Rightarrow ar = \frac{a^r}{-\frac{r}{a}} \Rightarrow ar = -a^r \Rightarrow a = -r$$

(15)

$$\lim_{x \rightarrow \pi^-} \frac{\cot x}{x - \pi} = \frac{\cot \pi^-}{-1} = -\frac{\cos \pi^-}{\sin \pi^-} = +\infty$$

(14)

Q: $x=a \Rightarrow a^r + a = 0 \Rightarrow a(a+1) = 0$

$\Rightarrow \begin{matrix} a=0 \\ 0 \leq \epsilon \end{matrix} \quad \text{or} \quad \begin{matrix} a=-1 \\ 0 \leq \epsilon \end{matrix}$

Q: $x=a \Rightarrow a^r + a^r + (m-r)a = 0$

$\Rightarrow a(a^r + a^r + (m-r)) = 0 \Rightarrow \begin{matrix} a=1 \\ m=r \end{matrix}$

$$\Rightarrow \lim_{x \rightarrow -1} \frac{\sqrt{r} |x-1|}{|x^r+1|} = \lim_{x \rightarrow -1} \frac{\sqrt{r} |x+1|}{|(x+1)(x^{r-1}+x^{r-2}+\dots+1)|} = \frac{\sqrt{r}}{r} = \frac{1}{\sqrt{r}}$$

(15)

$$(f(x) - rg(x))' = \left(\frac{r|x-r| - r|x-r| - r\sqrt{x}}{r\sqrt{x^r}} \right)' = \frac{\sqrt{r}}{r} x^{-\frac{r}{2}} = \frac{\sqrt{r}}{r\sqrt{x}}$$

(19)

$$f(x) = \frac{r|x-r|}{r\sqrt{x^r}}, \quad g(x) = \frac{|x-r| + \sqrt{r}x}{r\sqrt{x^r}}$$

(20)

$$y = \frac{2}{r} x + 1 \quad f(r) = 0$$

$$f'(r) = \frac{2}{r}$$

(سوال ۲۰)

$$\left\{ \begin{array}{l} r b = r a \Rightarrow b = r a \\ r b a + C = r a^2 \end{array} \right.$$

$$\Rightarrow C = -r a^2$$

$$\Rightarrow a^2 + b - C = a^2 + r a + r a^2 = (a+1)^2 - 1$$

(سوال ۲۱)

$$x_{\max} = \frac{0 \times 1 + a \times \frac{r}{r}}{\frac{2}{r}} = \frac{r}{2} a$$

$$\sqrt{\frac{2}{r} a^2} \times \frac{r}{2} a = 1 \Rightarrow a = \frac{r}{2}$$

$$\Rightarrow \frac{2}{r} a^2 \times \frac{a^2}{2} = \frac{1}{r^2} \Rightarrow a^2 = \frac{1}{r} = \left(\frac{1}{r}\right)^2$$

$$\Rightarrow a = \frac{1}{r}$$

(سوال ۲۲)

پتہ: یو. ڈی. اے. (اسات)

Dr. Khanjari. a 0910 114 9215