



مدیریت آموزش و پرورش منطقه ۱۴
دبیرستان غیر دولتی پسرانه پیام غدیر
پایانی اول ۹۹-۹۸
پاسخ نامه درس: ریاضی ۱

نام دبیر: آقای صدری
تاریخ امتحان:
رشته تحصیلی: ریاضی فیزیک

ساعت شروع امتحان: صبح



$$3 + 10 + n(A \cap B) = 22 \Rightarrow n(A \cap B) = 9$$

(۱/۷۵)

(۱/۲۵)

$$b-d \quad \leftarrow \quad \rightarrow b+d$$

$$a+b+c = 27 \Rightarrow 3b = 27 \Rightarrow b = 9$$

(۱/۲۵)

$$(9-d) \times 9 \times (9+d) = 81 \Rightarrow d = \pm 5 \Rightarrow 2, 9, 14$$

(۱/۵)

(۱/۷۵)

$$q^1 = \frac{a_1}{a_2} \Rightarrow q = \frac{1}{\frac{25}{16}} = \frac{1}{16} \Rightarrow q = \pm \frac{1}{4} \Rightarrow q = \frac{1}{4}$$

(۱/۲۵)

$$a_2 = 9q^1 \Rightarrow \frac{1}{4} = a_1 \times \frac{1}{4} \Rightarrow a_1 = 1$$

(۱/۲۵)

$$a_n = 1 \times \frac{1}{4^{n-1}} = \frac{1}{4^{n-1}} \Rightarrow \frac{1}{4^{n-1}} < \frac{1}{4} \Rightarrow n-1 < 1 \Rightarrow n < 2$$

(۱/۵)

$$\Rightarrow n-1 = 0, 1, 2, \dots, 9 \Rightarrow n = 1, 2, \dots, 10$$

(۱/۵)

$$\begin{cases} a_1 + a_0 = -8 \Rightarrow 2a_1 + 5d = -8 \\ a_4 = -7 \end{cases}$$

$$\Rightarrow a_1 = 3 \quad d = -2$$

$$a_1 + 5d = -7$$

(۱/۲۵)

(۱/۵)

$$\sin 135^\circ = \frac{-\sqrt{2}}{2}, \quad \cos 135^\circ = \frac{-1}{\sqrt{2}}, \quad \tan 135^\circ = \sqrt{2} \quad (1/20) \quad - \Delta$$

$$\cot 135^\circ = \frac{\sqrt{2}}{2} \quad (1/20)$$

$$\sqrt{1 - 2 \sin \alpha \cos \alpha} + \sqrt{1 + 2 \sin \alpha \cos \alpha} = \sqrt{(\sin \alpha - \cos \alpha)^2} + \sqrt{(\sin \alpha + \cos \alpha)^2} \quad (1/5) \quad - \Delta$$

$$= \underbrace{|\sin \alpha - \cos \alpha|}_{-} + \underbrace{|\sin \alpha + \cos \alpha|}_{+} = 2 \cos \alpha \quad (1/5)$$

$$ABH: \cos 45^\circ = \frac{r\sqrt{2}}{AB} \Rightarrow AB = r\sqrt{2} \quad (1/5) \quad - \Delta$$

$$\frac{AC}{\sin 60^\circ} = \frac{AB}{\sin 45^\circ} \Rightarrow \frac{AC}{\frac{\sqrt{3}}{2}} = \frac{r\sqrt{2}}{\frac{\sqrt{2}}{2}} \Rightarrow AC = r\sqrt{3} \quad (1/5) \quad (1/5)$$

$$1 + \tan^2 x = \frac{1}{\cos^2 x} \Rightarrow \cos^2 x = \frac{1}{2} \Rightarrow \cos x = \frac{\pm 1}{\sqrt{2}} \quad (1/5) \quad - \Delta$$

$$\tan x = \frac{\sin x}{\cos x} \Rightarrow \frac{-\sqrt{2}}{1} = \frac{\sin x}{\frac{1}{\sqrt{2}}} \Rightarrow \sin x = \frac{-1}{\sqrt{2}} \quad (1/5)$$

$$\tan \alpha = -\sqrt{2} \Rightarrow \alpha = 135^\circ \quad (1/5) \quad (1/5)$$

$$\frac{1}{\sqrt{\sqrt[r]{r+1}-1}} \times \frac{\sqrt{\sqrt[r]{r+1}+1}}{\sqrt{\sqrt[r]{r+1}+1}} = \frac{\sqrt{\sqrt[r]{r+1}+1}}{\sqrt[r]{r+1}} \times \frac{\sqrt{\sqrt[r]{r+1}+1}}{\sqrt{\sqrt[r]{r+1}-1}} \quad (1)$$

$$= \frac{\sqrt{\sqrt[r]{r+1}+1}}{\sqrt[r]{r+1}} \left(\sqrt{\sqrt[r]{r+1}+1} \right) \quad (1/20)$$

$$= \sqrt{\sqrt[r]{r+1}+1} \quad (1/20)$$

$$1) \quad a^4 + b^4 - r b^4 + r a^4 b^4 = (a^4 + b^4)^2 - r b^4 \quad (1/20)$$

$$= (a^4 + b^4 - r b^4)(a^4 + b^4 + r b^4) \quad (1/20)$$

$$= (a-b)(a^3 + ab^2 + b^3)(a^4 + r b^4) \quad (1/20)$$

$$2) \quad x^4 + x^2 + x^2 - 1 = x^2(x+1) + (x-1)(x+1) = (x+1)(x^2 + x - 1) \quad (1/20)$$

$$\sqrt[4]{r^4 \times r^4} \times \sqrt[4]{r^4 \times r^4} \times \sqrt[4]{r^4 \times r^4} = \sqrt[4]{r^4 \times r^4} \times \sqrt[4]{r^4 \times r^4} \times \sqrt[4]{r^4 \times r^4} \quad (1/20)$$

$$= \sqrt[4]{r^4 \times r^4 \times r^4 \times r^4} = 4 \quad (1/20)$$

$$(x-r)(x+r)(x^2+rx+r^2)(x^2-rx+r^2) = (x^2-1)(x^2+1) \quad (1/20)$$

$$= x^4 - 1 \quad (1/20)$$

$$-(x-2)^2 + 1 = 0 \Rightarrow (x-2)^2 = 1 \Rightarrow x-2 = \pm 1 \quad \left. \begin{array}{l} \text{.125} \\ \text{.125} \end{array} \right\} \text{12}$$

$$x = 1, 3$$

$$\text{.125}$$

$$y = a(x-1)(x-3) \xrightarrow[\text{نقطه}]{A(0,1)} 1 = a \cdot (-1) \cdot (-3) \Rightarrow a = \frac{1}{3} \quad \left. \begin{array}{l} \text{.125} \\ \text{.125} \end{array} \right\} \text{12}$$

$$y = \frac{1}{3}(x^2 - 4x + 3) = \frac{1}{3}x^2 - \frac{4}{3}x + 1 \quad \text{.125}$$

$$1) \Delta = 0 \Rightarrow \varepsilon m^2 - \varepsilon(2+m) = 0 \Rightarrow m^2 - m - 2 = 0 \quad \left. \begin{array}{l} m = -1 \\ m = 2 \end{array} \right\} \left. \begin{array}{l} \text{.125} \\ \text{.125} \end{array} \right\}$$

$$2) \frac{-b}{2a} > 0 \Rightarrow \frac{2m}{\varepsilon + 2m} > 0 \Rightarrow m = 2 \quad \text{.125}$$

x	$-\infty$	$\frac{2}{3}$	2	$+\infty$
$2-x$	-	+	+	+
$x-2$	+	+	-	-
P	-	+	-	-

$$\mathcal{D}f = (-\infty, \frac{2}{3}] \cup (2, +\infty)$$

$$\text{.125}$$