

درم حضرت

۱۸، ۲۵

نام خدا

فاطمه مکی المصطفی

تطبیق ۲۱

$$1 \times 2 \times 3 \times 4 = 24 \quad \text{کمان}$$

$$(1! + 3! + 5! + \dots + 2!) (1! + 4! + 6! + \dots + 2!)$$

سوال ۱

✓ ۲

$$1 + 4 = 5$$

$$2 + 4 = 6$$

از بعد از: 1 به بعد کمان 0 است $\Rightarrow$ کمان عدد 2 $\Rightarrow 5 \times 4 = 20$

سوال ۲

$$\frac{\sqrt{2} + \sqrt{5}}{\sqrt{10} + 2} (\sqrt{3 - \sqrt{5}} - \sqrt{3 + \sqrt{5}})$$

$$A^2 = 3 - \sqrt{5} + 3 + \sqrt{5} - 2\sqrt{9 - 5} = 4 - 2 = 2$$

$$\Rightarrow A = \sqrt{2} \rightarrow A = \pm \sqrt{2} \rightarrow -\sqrt{2}$$

$$\frac{\sqrt{2} + \sqrt{5}}{\sqrt{10} + 2} (\sqrt{10} - 2) = \frac{2\sqrt{5} - 2\sqrt{2} + 5\sqrt{2} - 2\sqrt{5}}{10 - 4} = \frac{3\sqrt{2}}{6} = \frac{\sqrt{2}}{2}$$

$$\frac{\sqrt{2}}{2} \times \sqrt{2} = 1$$

درم حضرت (الف)

$$\frac{\sqrt{2} + \sqrt{5}}{\sqrt{10} + 2} (\sqrt{3 - \sqrt{5}} - \sqrt{3 + \sqrt{5}})$$

$$A^2 = 3 - \sqrt{5} + 3 + \sqrt{5} - 2\sqrt{9 - 5} = 4 - 2 = 2$$

$$\Rightarrow A = \sqrt{2} \rightarrow A = \pm \sqrt{2} \rightarrow -\sqrt{2}$$

$$\frac{\sqrt{2} + \sqrt{5}}{\sqrt{10} + 2} (\sqrt{10} - 2) = \frac{2\sqrt{5} - 2\sqrt{2} + 5\sqrt{2} - 2\sqrt{5}}{10 - 4} = \frac{3\sqrt{2}}{6} = \frac{\sqrt{2}}{2}$$

$$\frac{\sqrt{2}}{2} \times \sqrt{2} = 1$$

DATE

/ /

Subject:

سوال ۱۴

$$(الف) \left(\frac{\sqrt{1+\sqrt{3}} + \sqrt{\sqrt{3}-1}}{\sqrt{\sqrt{3}-\sqrt{2}}} \right)^2 - 2 = \frac{A^2-2}{2} \Rightarrow \frac{1+\sqrt{3}+\sqrt{3}-1+2\sqrt{3}-1}{\sqrt{3}-\sqrt{2}}$$

ناقص ۱، ۲، ۵

$$= \frac{2\sqrt{3}+2\sqrt{2}}{\sqrt{3}-\sqrt{2}} = 2 \frac{(\sqrt{3}+\sqrt{2})(\sqrt{3}+\sqrt{2})}{(\sqrt{3}-\sqrt{2})(\sqrt{3}+\sqrt{2})} = A^2 - 2 \Rightarrow A = \sqrt{2-2}$$

حاصل

← پائین صفر بخون :)

$$\rightarrow \sqrt[12]{2^8} \times \sqrt[4]{2 \times 3^6} \times \sqrt[6]{2^6} = 2^{\frac{8}{12}} \times 2^{\frac{1}{4}} \times 3^{\frac{6}{4}} \times 2^{\frac{1}{2}} \times 2^{\frac{1}{12}}$$

$$= 2^1 \times (2^1)^{\frac{1}{4}} \times 3 = 2 \times 2 \times 3 = 12$$

(سوال 3)

$$\frac{r^x (1 + r + \dots + r^{4r})}{r^x \left(\frac{1}{r} + \frac{1}{r} + \dots + 1 \right)} = \left(\frac{r}{r} \right)^x \times \frac{1 \times \frac{r^4 - 1}{r - 1}}{\frac{1}{r} \times \frac{r^4 - 1}{r - 1}} =$$

$$\left(\frac{r}{r} \right)^x \times \frac{r^4 - 1}{r^4 - 1} = 1 \Rightarrow \left(\frac{r}{r} \right)^x = 1 \Rightarrow x = 0$$

$$\Rightarrow r^x \times r^{-x} = 1 \Rightarrow r^0 = 1$$

$$\left(\frac{r}{r} \right)^x \times \frac{r}{9} = 1 \Rightarrow \left(\frac{r}{r} \right)^x = \frac{9}{r}$$

$$\Rightarrow x = 1$$

(سوال 6)

$$(a-b)^t \times (a+b)^t =$$

$$(a^2 - b^2)^t = (\sqrt{4-1} - \sqrt{4+1})^t = (\sqrt{4-1} - \sqrt{4+1})^t$$

$$(\sqrt{4-1} + \sqrt{4+1} - 2\sqrt{4-1})^t = (2\sqrt{4-1} - 2\sqrt{4+1})^t =$$

$$t(4) + t(4) - 1\sqrt{12} = 32 - 1\sqrt{12} = 32 - 14\sqrt{3}$$

$$\rightarrow 14(4 - \sqrt{3}) \rightarrow t = 14$$

(1/4)

$$A = r^{\frac{1}{a}} \times 14^{\frac{1}{1a}} \times r^{\frac{r}{r}} = r^{\frac{1}{a}} \times r^{\frac{r}{1a}} \times r^{\frac{r}{r}} = r^{\frac{1}{a}} \times r^{\frac{r}{a}} \times r^1 = r^{\frac{1+r}{a}} = r^{\frac{1+r}{a}}$$

$$(rA)^{-\frac{1}{r}} = (r \times r^{\frac{1+r}{a}})^{-\frac{1}{r}} = (r^{\frac{1+r}{a}})^{-\frac{1}{r}} = r^{-\frac{1+r}{ar}} = \left(\frac{1}{r}\right)^{\frac{1+r}{a}}$$

(2) ✓

$$\sqrt[r]{a} = r^r \times a^{\frac{1a}{r}}$$

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

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

$$a^{\frac{1}{r}} = r^r \times a^{\frac{1a}{r}} \xrightarrow{\div a^{\frac{1}{r}}} 1 = a^{\frac{1r}{r}} \times r^r \Rightarrow a^r = r^{-r} \Rightarrow a = \sqrt[r]{\frac{1}{r}} = \frac{1}{r} \sqrt[r]{\frac{1}{r}} \Rightarrow \frac{1}{a} = \sqrt[r]{r} = r^{\frac{1}{r}}$$

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

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

$$r(r - \sqrt[r]{r}) = 4 - r\sqrt[r]{r}$$

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

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

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

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

$$a = \sqrt[t]{(\sqrt{r}-\sqrt{r})^r} = \sqrt{r-\sqrt{r}}$$

(سوال ۷)

$$(a + \frac{1}{a})^r = a^r + \frac{1}{a^r} + r = r - \sqrt{r} + \frac{1}{r - \sqrt{r}} + r = \frac{1 - r\sqrt{r}}{r - \sqrt{r}} + r$$

$$(a + \frac{1}{a} + \sqrt{r})(a + \frac{1}{a} - \sqrt{r})^r = ((a + \frac{1}{a})^r - r)^r = \left(\frac{1 - r\sqrt{r}}{r - \sqrt{r}}\right)^r =$$

$$\left(\frac{r(r - \sqrt{r})}{r - \sqrt{r}}\right)^r = (19) \rightarrow r^t = 19 \rightarrow \boxed{t=4} \quad (1.175)$$

(سوال ۲)

$$(r + \sqrt{r})^{-\frac{1}{r}} \times (1 + \sqrt{r})^{\frac{1}{r}} =$$

$$(r + \sqrt{r})^{-\frac{1}{r}} \times (1 + \sqrt{r})^{\frac{1}{r}} =$$

$$\frac{(r + \sqrt{r})^{-\frac{1}{r}}}{(1 + \sqrt{r})^{\frac{1}{r}}} =$$

$$((r + \sqrt{r})^{-1})^{\frac{1}{r}} \times ((1 + \sqrt{r})^r)^{\frac{1}{r}} = r^{\frac{1}{r}} = \left(\frac{r}{\sqrt{r}}\right)$$

$$\downarrow$$

$$(1 + r\sqrt{r})^{\frac{1}{r}} = r^{\frac{1}{r}} \times (r + \sqrt{r})^{\frac{1}{r}}$$

$$\sqrt{x+a} + \sqrt{x-f} - r + \sqrt{x-f} - \sqrt{x-f} = ? \quad r\sqrt{x-f}$$

DATE

Subject

سوال ۱۰

$$\sqrt{x+a} + \sqrt{x-f} - r$$

$$rt = x+a - (x-f) = a+f \Rightarrow t = \frac{a+f}{r}$$

$$\sqrt{x+a} - \sqrt{x-f}$$

$$\frac{a+f}{r} - r = -r + \frac{a+f}{r} = \frac{a}{r}$$

~~$$\sqrt{x+a} + \sqrt{x-f} - r + \sqrt{x-f} - \sqrt{x-f} = ?$$~~

~~$$\frac{r\sqrt{x+a} + r\sqrt{x-f}}{(\sqrt{x+a} + \sqrt{x-f}) - \sqrt{x+f}} = \frac{(r\sqrt{x+a} + r\sqrt{x-f})(\sqrt{x+f})}{r\sqrt{x+a} + r\sqrt{x-f}}$$~~

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

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

سوال ۳

$$\text{—) } \frac{\sqrt{27} - 1}{2 + \sqrt{3}} + (2 - \sqrt{3})^{-1}$$

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

مزدوج ✓

$$\frac{(3\sqrt{3} - 1)(\sqrt{3} - 1)}{(\sqrt{3})^2 + 1^2 + \sqrt{3}(\sqrt{3} - 1)} = \frac{(3\sqrt{3} - 1)(\sqrt{3} - 1)}{3 + 1 + \sqrt{3} - 1} = \sqrt{3} - 1$$

$$\sqrt{3} - 1 + 2 + \sqrt{3} = \boxed{1 + 2\sqrt{3}}$$

$$\text{الف) } \frac{2\sqrt{2} + 3\sqrt{3}}{2 - \sqrt{4}} - 2(\sqrt{9} - 1)^{-1}$$

$$\frac{(2\sqrt{2} + 3\sqrt{3})(\sqrt{2} + \sqrt{3})}{((\sqrt{2})^2 + (\sqrt{3})^2 - \sqrt{2} \times \sqrt{3})(\sqrt{2} + \sqrt{3})} = \frac{(2\sqrt{2} + 3\sqrt{3})(\sqrt{2} + \sqrt{3})}{2 + 3 - \sqrt{6}} = \frac{(2\sqrt{2} + 3\sqrt{3})(\sqrt{2} + \sqrt{3})}{5 - \sqrt{6}}$$

✓ ۵

$$\sqrt{2} + \sqrt{3} - 2(\sqrt{3} - 1)^{-1} = \sqrt{2} + \sqrt{3} - \frac{2}{\sqrt{3} - 1} \cdot \frac{(\sqrt{3} + 1)}{(\sqrt{3} + 1)} = \sqrt{2} + \sqrt{3} - \frac{2(\sqrt{3} + 1)}{\sqrt{3} - 1}$$

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

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

$$\frac{\overbrace{\sqrt{1+\sqrt{3}} + \sqrt{\sqrt{3}-1}}^A}{\sqrt{\sqrt{3}-\sqrt{2}}} - 2$$

↪ ← ↲

$$A^2 = 1 + \sqrt{3} + \sqrt{3} - 1 + 2\sqrt{3-1} = 2\sqrt{3} + 2\sqrt{2}$$

$$A = \sqrt{2} (\sqrt{\sqrt{3}+\sqrt{2}})$$

$$\rightarrow \frac{\sqrt{2} (\sqrt{\sqrt{3}+\sqrt{2}})}{(\sqrt{\sqrt{3}-\sqrt{2}})} = \sqrt{2} (\sqrt{\sqrt{3}+\sqrt{2}})^2 = \sqrt{4} + 2 - 2 = \sqrt{4}$$

$$\downarrow \frac{\sqrt{3}+\sqrt{2}}{\sqrt{3}-\sqrt{2}} \times \frac{\sqrt{3}+\sqrt{2}}{\sqrt{3}+\sqrt{2}} = (\sqrt{3}+\sqrt{2})^2$$