

م: 26 اتری قطب شاره 21 طاس دهم دهم 1

$$(1! + 3! + 5! + \dots + 201!) (2! + 4! + 6! + \dots + 202!) \quad -1$$

$$\hookrightarrow 1! + 3! = 1 + (1 \times 2 \times 3) = 6 \quad \hookrightarrow 2! + 4! = 2 + (1 \times 2 \times 3 \times 4) = 26 \quad (4)$$

$$v \times y = 4(2) \rightarrow 8$$

$$\text{الف) } \sqrt[4]{(x+\sqrt{v})^{-1}} \times \sqrt[4]{(1+\sqrt{v})} = \sqrt[4]{(x+\sqrt{v})^{-1}} \times \sqrt[4]{\frac{1+\sqrt{v}}{x+\sqrt{v}}} = \sqrt[4]{\frac{1+\sqrt{v}}{x+\sqrt{v}}}$$

$$\sqrt[4]{(1+\sqrt{v})^2} \cdot (1+\sqrt{v})^{\frac{1}{2}} = \frac{2}{\sqrt{v}}$$

$$\sqrt[4]{\frac{2(x+\sqrt{v})}{x+\sqrt{v}}} = \sqrt[4]{2} = \frac{2}{\sqrt{v}}$$

$$\text{ب) } \left(\frac{\sqrt{2} + \sqrt{5}}{\sqrt{5} + 2} \right) \left(\sqrt{3-\sqrt{5}} - \sqrt{2+\sqrt{5}} \right) = \frac{\sqrt{3-\sqrt{5}} - \sqrt{2+\sqrt{5}}}{\sqrt{2}} \times \frac{\sqrt{2}}{\sqrt{2}} =$$

$$\hookrightarrow \frac{\sqrt{2} + \sqrt{5}}{\sqrt{2}(\sqrt{5} + 2)} \left(\frac{1}{\sqrt{2}} \right)$$

$$\frac{\sqrt{4-2\sqrt{5}} - \sqrt{4+2\sqrt{5}}}{2}$$

$$\frac{\sqrt{(2\sqrt{5}-1)^2} - \sqrt{(2\sqrt{5}+1)^2}}{2} = \frac{2\sqrt{5}-1 - 2\sqrt{5}-1}{2} = \frac{-2}{2} = -1$$

$$\text{الف) } \frac{\sqrt{1} + \sqrt{17}}{5 - \sqrt{4}} = 2 (\sqrt{4} - 1)^{-1} = \frac{2\sqrt{2} + 2\sqrt{2}}{(2)^2 + (2)^2 - \sqrt{2} \times \sqrt{2}} = \frac{2}{2-1} = 2$$

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

$$(2\sqrt{2} + 2\sqrt{2})$$

$$\text{ب) } \frac{\sqrt{2v} - 1}{v + \sqrt{v}} + (v - \sqrt{v})^{-1} = \frac{13\sqrt{v} - 1 - 9 + \sqrt{v}}{13} + \frac{2\sqrt{v}}{v - \sqrt{v}} =$$

$$\frac{13\sqrt{v} - 10}{13} + \frac{2 + \sqrt{v}}{1} \geq \frac{13(\sqrt{v} - 1)}{13} \geq \sqrt{v} - 1 + 2 + \sqrt{v} = 2\sqrt{v} + 1$$

$$\text{Sol)} \frac{\sqrt{1+\sqrt{r}} + \sqrt{\sqrt{r}-1}}{\sqrt{\sqrt{r}-\sqrt{r}}} = r \Rightarrow \frac{\sqrt{1+\sqrt{r}} + \sqrt{\sqrt{r}-1}}{\sqrt{\sqrt{r}-\sqrt{r}}} \times \frac{\sqrt{\sqrt{r}+\sqrt{r}}}{\sqrt{\sqrt{r}+\sqrt{r}}} \Rightarrow -r$$

$$(\sqrt{1+\sqrt{r}} + \sqrt{\sqrt{r}-1})(\sqrt{\sqrt{r}-\sqrt{r}}) \Rightarrow \sqrt{[(\sqrt{1+\sqrt{r}} + \sqrt{\sqrt{r}-1})(\sqrt{\sqrt{r}-\sqrt{r}})]^2}$$

$$\sqrt{(1+\sqrt{r}-\sqrt{r})(\sqrt{r}-\sqrt{r})} = (\sqrt{r}-\sqrt{r})\sqrt{r} = r = \sqrt{4-r}$$

$$\text{b)} \sqrt[4]{r\sqrt{r}} \times \sqrt[4]{14r} \times \sqrt[4]{r\sqrt{r}} = r^{\frac{1}{4}} \times r^{\frac{1}{4}} \times r^{\frac{1}{4}} \times r^{\frac{1}{4}} = r \times r = r^2$$

$$r^x + r^{x+1} + r^{x+2} + r^{x+3} + r^{x+4} + r^{x+5}$$

$$r^{x-2} + r^{x-1} + r^x + r^{x+1} + r^{x+2} + r^{x+3}$$

$$\frac{r^x(1+r+\dots+r^5)}{r^{x-2}(1+r+\dots+r^5)} = \frac{r^x(\frac{r^6-1}{r-1})}{r^{x-2}(\frac{r^6-1}{r-1})} = \frac{r^x(r^6-1)}{r^{x-2}(r^6-1)} \Rightarrow \frac{r^x}{r^{x-2}} = r^2$$

$$\Rightarrow \frac{r^{x-2}}{r^{x-2}} = 1 \Rightarrow r^2$$

$$a = \sqrt[4]{4-r} \quad b = \sqrt[4]{4+r} \quad (a^r + b^r - rab)^r (a^r + b^r + rab)^r + (r - \sqrt{r}) = 4$$

$$((a^r + b^r) - rab)^r = (a^r + b^r + rab - 2rab)^r = (a^r + b^r - rab)^r$$

$$\left[(\sqrt[4]{4-r})^r (\sqrt[4]{4+r})^r - r (\sqrt[4]{4-r}) (\sqrt[4]{4+r}) \right]^r =$$

$$(r\sqrt{4-r} - r\sqrt{4+r})^r = [r\sqrt{r}(\sqrt{r}-1)]^r = 14(r-\sqrt{r}) + (r-\sqrt{r}) \Rightarrow t = 14$$

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$$a = \sqrt[3]{V - \sqrt{r}} = \sqrt{(r - \sqrt{r})^2} = \sqrt{r - \sqrt{r}} \quad -V$$

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

$$\left(r - \sqrt{r} + \frac{1}{r - \sqrt{r}}\right)^r = \left(r - \sqrt{r} + r + \sqrt{r}\right)^r = 14 = r^t \rightarrow \underline{t = 2}$$

$$A = \sqrt[3]{r^r \sqrt{r}} = \left(\frac{1}{r}\right)^{-\frac{r}{3}} = r^{\frac{r}{3}} \times r^{\frac{r}{6}} = \underline{r} \quad -A$$

$$(rA)^{\frac{1}{r}} = 1^{\frac{1}{r}} = \left(\frac{1}{r}\right)$$

$$rVa^{\frac{10}{9}} = a^{\frac{1}{9}} \rightarrow rV \times a^{\frac{1}{9}} = 1 \rightarrow a = \frac{1}{r^9 \sqrt{r}} \quad -9$$

$$\frac{\frac{1}{a} - r}{1 + \sqrt{r}} = \frac{r\sqrt{r} - r}{1 + \sqrt{r}} \times \frac{\sqrt{r} - 1}{\sqrt{r} - 1} = \frac{r(r - \sqrt{r})}{r} = \underline{4 - r\sqrt{r}}$$

$$(\sqrt{x+4} - \sqrt{x-r})(\sqrt{x+a} + \sqrt{x-r}) = a + r \quad -10$$

$$\sqrt{x+a} + \sqrt{x-r} = \frac{a+r}{r} \Rightarrow \sqrt{x+a} + \sqrt{x-r} = r = \frac{9}{r} + r - r = \underline{\frac{9}{r}}$$