

۲۰

رقم پان اجزاء را از به جهت وجود عوامل ۲ و ۵ است.

$$\Rightarrow \left(\frac{11+31}{\sqrt{1+6}} \right) \left(\frac{5!+4!}{\sqrt{2+4}} \right) = 7 \times 4 = 28 \quad \boxed{2}$$

الف) $\sqrt{\frac{1}{4+5\sqrt{2}} \times \frac{1}{(1+\sqrt{2})^2}} \rightarrow \sqrt{\frac{1}{8+2\sqrt{2}}}$

$$= \sqrt{\frac{4-5\sqrt{2}}{9} \times (4+5\sqrt{2})}$$

$$= \sqrt{\frac{16-25}{9}} = \sqrt{\frac{-9}{9}} = \sqrt{-1}$$

$(4-5\sqrt{2})(4+5\sqrt{2}) = 9$

$$(\sqrt{3-\sqrt{8}} - \sqrt{3+2\sqrt{5}})^2 = 3-\sqrt{8} + 3+2\sqrt{5} - 2\sqrt{(3-\sqrt{8})(3+2\sqrt{5})}$$

$$= 6 - 2\sqrt{9-3\sqrt{8}+2\sqrt{5}} = 6 - 2\sqrt{9-3\sqrt{8}+2\sqrt{5}}$$

چون $3-\sqrt{8} < 0 \rightarrow -\sqrt{2}$

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

الف) $\frac{\sqrt{2}\sqrt{1+\sqrt{2}} \times \sqrt{5}\sqrt{5}}{5-\sqrt{5} \times (5+\sqrt{5})} = \frac{10\sqrt{2} \times \sqrt{5}}{5-\sqrt{5} \times (5+\sqrt{5})}$

$$= \frac{10\sqrt{10}}{5-5-\sqrt{5}} = \frac{10\sqrt{10}}{-\sqrt{5}} = -10\sqrt{2}$$

ب) $\frac{1}{\sqrt{3-1(\sqrt{5}+1)}} = \frac{10\sqrt{2}+2\sqrt{10}+10\sqrt{5}+2\sqrt{10}}{19}$

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

ب) $\frac{1}{\sqrt{2}} \times \frac{1}{\sqrt{2}} \times \frac{1}{\sqrt{2}} \times \frac{1}{\sqrt{2}} = \frac{1}{4} = 1$

الف) $(\sqrt{2})^2 \rightarrow \frac{10\sqrt{10}+2\sqrt{10}+10\sqrt{5}+2\sqrt{10}}{\sqrt{2}-\sqrt{2}} = \frac{10+4\sqrt{5}}{\sqrt{2}-\sqrt{2}} = \frac{10+4\sqrt{5}}{0}$

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$$\begin{aligned} ((a-b)^r)^r ((a+b)^r)^r &= (a^r - b^r)^r = \frac{\sqrt{a^r + 1} - \sqrt{a^r - 1}}{\sqrt{a^r + 1} + \sqrt{a^r - 1}} = \frac{\sqrt{a^r + 1} - \sqrt{a^r - 1}}{2\sqrt{a^r}} \\ \left(\frac{\sqrt{a^r + 1} - \sqrt{a^r - 1}}{2\sqrt{a^r}} \right)^r &= \frac{(\sqrt{a^r + 1} - \sqrt{a^r - 1})^r}{2^r a^{r/2}} = \frac{1}{2^r a^{r/2}} \left(\sqrt{a^r + 1} - \sqrt{a^r - 1} \right)^r \end{aligned}$$

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

$$\sqrt[3]{x^3 \cdot x^2 \cdot x^{1/2}} = \sqrt[3]{x^{7/2}} = x^{7/6} = x^{1 \frac{1}{6}} = x \cdot x^{1/6} = x \cdot \sqrt[6]{x} = x \sqrt[6]{x}$$

$$(\lambda)^{-\frac{1}{2}} = \left(\frac{1}{\lambda} \right)$$

$$\frac{a^{\frac{1}{v}}}{r^{\frac{d}{v}}} = r^u \times a^{\frac{10}{j}} \Rightarrow 1 = r^u \times a^{\frac{10}{j}} \Rightarrow a^{-\frac{1}{j}} = r^u$$
$$\frac{1}{a^{\frac{1}{j}}} = r^u \sqrt{j}$$
$$\frac{r\sqrt{r} - r}{1 + \sqrt{r} (r-1)} = \frac{r(\sqrt{r}-1)(\sqrt{r}+1)}{r} = \frac{r(r+1 - r\sqrt{r})}{r} = \frac{r(1 - \sqrt{r})}{r} = 1 - \sqrt{r}$$

$$\frac{\sqrt{n+a} - \sqrt{n-\epsilon} \times \sqrt{n+a} \sqrt{n-\epsilon}}{\sqrt{n+a} + \sqrt{n-\epsilon}} = \frac{a + \epsilon}{\sqrt{n+a} + \sqrt{n-\epsilon}} \rightarrow$$

$$\sqrt{n+a} + \sqrt{n-\epsilon} = \frac{a + \epsilon}{r} \rightarrow \frac{a}{r} + \cancel{\epsilon} = \boxed{\frac{a}{r}}$$

(r) ✓