

$$(1! + 2! + 3! + 4! + 5! + \dots) (2! + 4! + 6! + \dots) \Rightarrow \frac{(1+2+4+8)}{24} \frac{(2+4)}{24}$$

$\downarrow$
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 منہ

$4 \times 2 = 8$

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$$\text{اے) } \sqrt[4]{(4+\sqrt{5})^{-1}} \times \sqrt{1+\sqrt{5}} = (4+\sqrt{5})^{-\frac{1}{4}} (1+\sqrt{5})^{\frac{1}{2}}$$

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$$= (1+\sqrt{5})^{\frac{1}{2}} (4+\sqrt{5})^{-\frac{1}{4}} = \left(\frac{(1+\sqrt{5})^2}{(4+\sqrt{5})} \right)^{\frac{1}{4}} \Rightarrow \left(\frac{1+2\sqrt{5}+5}{4+\sqrt{5}} \right)^{\frac{1}{4}} = \left(\frac{6+2\sqrt{5}}{4+\sqrt{5}} \right)^{\frac{1}{4}} = (2)^{\frac{1}{4}} = \sqrt[4]{2}$$

$$\text{ب) } \frac{\sqrt{2}+\sqrt{5}}{\sqrt{10}+2} = \frac{\sqrt{2}+\sqrt{5}}{\sqrt{2}(\sqrt{5}+2)} = \frac{1}{\sqrt{2}} = \frac{\sqrt{2}}{2} \quad / \quad (\sqrt{4-5} - \sqrt{4+5}) = \left(\sqrt{\frac{5}{4}} - \sqrt{\frac{1}{4}} \right) - \left(\sqrt{\frac{5}{4}} + \sqrt{\frac{1}{4}} \right)$$

$$= -2\sqrt{\frac{1}{4}} = -2 \cdot \frac{1}{2} = -1$$

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

$a+b=2$
 $2\sqrt{ab}=\sqrt{5} \rightarrow ab=\frac{5}{4}$
 $a=\frac{5}{4} \quad b=\frac{1}{4}$

$$\text{اے) } \frac{2\sqrt{2}+3\sqrt{3}}{5-\sqrt{4}} - 2(\sqrt{4}-1)^{-1} \Rightarrow \frac{2\sqrt{2}+3\sqrt{3}}{5-\sqrt{4}} \times (5+\sqrt{4}) = \frac{10\sqrt{2}+19\sqrt{3}}{19} = \frac{10(\sqrt{2}+\sqrt{3})}{19} = \sqrt{2}+\sqrt{3}$$

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$$2\left(\frac{1}{\sqrt{4}-1}\right) = \frac{2 \times \sqrt{4}+1}{\sqrt{4}-1 \times \sqrt{4}+1} = \frac{2\sqrt{4}+2}{4-1} = \frac{2(\sqrt{4}+1)}{3} = \sqrt{4}+1 \quad (\sqrt{2}+\sqrt{3}) - (\sqrt{4}+1) = \sqrt{2}-1$$

$$\text{ب) } \frac{3\sqrt{3}-1}{4+\sqrt{3}} + \frac{1}{2-\sqrt{3}} \rightarrow \frac{1}{2-\sqrt{3}} \times \frac{(2+\sqrt{3})}{(2+\sqrt{3})} = \frac{2+\sqrt{3}}{1} \rightarrow 2+\sqrt{3}+\sqrt{3}-1 = 1+\sqrt{3}$$

$$\frac{3\sqrt{3}-1}{4+\sqrt{3}} \times \frac{(4-\sqrt{3})}{(4-\sqrt{3})} = \frac{12\sqrt{3}-9-4-\sqrt{3}}{13} = \frac{11\sqrt{3}-13}{13} = \sqrt{3}-1$$

←

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

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

$$(\sqrt{4}+\sqrt{2})^2 = 10+4\sqrt{6}$$

$$\sqrt{10+4\sqrt{6}} - 2 = \sqrt{4}$$

c.) $\sqrt[4]{3} \times \sqrt[4]{14} \times \sqrt[4]{\frac{1}{2}} = \sqrt[4]{3 \times 14 \times \frac{1}{2}} = \sqrt[4]{21}$

$$\frac{10^x (1+2+4+2V+11+2E^2)}{10^{x-2} (1+2+E+1+4+2^2)} = \frac{10^x \times 24}{10^{x-2} \times 14} = 10^2 = 100$$

$$\frac{\Delta x}{q} \times \frac{10^x}{10^{x-2}} = 10^2 \rightarrow \frac{10^x}{10^{x-2}} = \frac{1}{q} \rightarrow \frac{10^x}{10^{x-2}} \times \frac{1}{q} = 1 \rightarrow \frac{10^2}{10^{x-2}} = 1$$

$$10 \left(\frac{10}{x}\right)^x = 10 \rightarrow \left(\frac{10}{x}\right)^x = \frac{1}{x} \rightarrow \boxed{x=2}$$

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

$$2 \left(\sqrt{4-2} \sqrt{4+2} \right) = 2 \sqrt{(4-2)(4+2)} = 2 \sqrt{4-2} = 2\sqrt{2}$$

$$t = \frac{\sqrt{4-2} \times \sqrt{4+2}}{\sqrt{2} \times \sqrt{2}} = \frac{2\sqrt{2} \times \sqrt{2}}{2} = 2$$

$$a = \sqrt[5]{(2-\sqrt{2})^2} = \sqrt[5]{2-\sqrt{2}} \quad a + \frac{1}{a} = a \rightarrow 2 \sqrt[5]{2-\sqrt{2}} - 2 \sqrt[5]{2-\sqrt{2}} = 0$$

$$\left(a + \frac{1}{a}\right)^5 = a^5 + \frac{1}{a^5} + 5a^3 + \frac{5}{a^3} \rightarrow \left(2-\sqrt{2}\right)^5 + \frac{1}{\left(2-\sqrt{2}\right)^5} + 5\left(2-\sqrt{2}\right)^3 + \frac{5}{\left(2-\sqrt{2}\right)^3} = 10$$

$$W_o \rightarrow K - \frac{P_{AA} \times P}{P_T} = W_E - W_T = (P)$$

—A

$$(PA)^{-\frac{1}{P}} = (A)^{-\frac{1}{P}} = \sqrt[\frac{1}{P}]{A} = \left(\frac{1}{Y}\right)$$

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$$\frac{1}{a} - \frac{x^2}{x^2-1} = \frac{x\sqrt{x^2-1}}{(1+\sqrt{x^2-1})\sqrt{x^2-1}} = \frac{9-x\sqrt{x^2-1}}{2} = \frac{12-4\sqrt{3}}{2} = 6-2\sqrt{3}$$

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$$p(p+q) = (x+a) - (x-z) = a+z \rightarrow p+q = \frac{a+z}{y} \quad p+q - r = \frac{a+z}{y} - r = \left(\frac{a}{y}\right)$$