

جواب سؤال B

" جواب سؤالات ١٧ "

مستأهل

$$\left(\frac{1!}{1} + \frac{2!}{2} + \frac{3!}{3} + \dots + \frac{10!}{10} \right) = 9 \quad \left(\frac{1!}{1} + \frac{3!}{3} + \frac{5!}{5} + \dots + \frac{10!}{10} \right) = 9 \Rightarrow 9 \times V = \boxed{81} \Rightarrow \boxed{9} \quad (1)$$

$$\text{ايف) } \sqrt[4]{(1+\sqrt{2})^{-1}} \times (1+\sqrt{2})^2 = \sqrt[4]{\frac{1+\sqrt{2}+2\sqrt{2}+2}{1+\sqrt{2}}} = \sqrt[4]{\frac{3+2\sqrt{2}}{1+\sqrt{2}}} = \sqrt[4]{\frac{(1+\sqrt{2})^2}{1+\sqrt{2}}} = \sqrt[4]{1+\sqrt{2}} \quad (2)$$

$$\text{ب) } \left(\frac{\sqrt{2}+\sqrt{5}}{\sqrt{2}+\sqrt{5}} \right) \times (\sqrt{2}-\sqrt{5} - \sqrt{2}+\sqrt{5}) = \frac{\sqrt{2}-\sqrt{5}}{1} - \frac{\sqrt{2}+\sqrt{5}}{1} = \frac{\sqrt{2}-1-\sqrt{2}-1}{1} = -2 \quad (3)$$

$$\text{ايف) } \frac{(2\sqrt{2}+3\sqrt{3})}{(2-\sqrt{2})} \times \frac{(2+\sqrt{2})}{(2+\sqrt{2})} = \frac{19(2+\sqrt{2})}{19} = 2+\sqrt{2} \div -2 \left(\frac{1}{\sqrt{2}-1} \right) \rightarrow \times \frac{(\sqrt{2}+1)}{(\sqrt{2}+1)} = -(\sqrt{2}+1) \quad (4)$$

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

$$\text{ب) } \left(\frac{3\sqrt{2}-1}{2+\sqrt{2}} \right) \times \frac{(2-\sqrt{2})}{(2-\sqrt{2})} = \sqrt{2}-1 \div \left(\frac{1}{2-\sqrt{2}} \right) \times \frac{(2+\sqrt{2})}{(2+\sqrt{2})} = \boxed{2+\sqrt{2}} \Rightarrow \sqrt{2}-1+2+\sqrt{2} = \boxed{2\sqrt{2}+1} \quad (5)$$

$$\text{ايف) } \left(\frac{\sqrt{1+\sqrt{2}} + \sqrt{\sqrt{2}-1}}{\sqrt{\sqrt{2}-1}} \right)^2 - 2 \Rightarrow \frac{1+\sqrt{2}+\sqrt{2}-1+2\sqrt{2}}{\sqrt{2}-\sqrt{2}} \Rightarrow \frac{2\sqrt{2}+2\sqrt{2}}{\sqrt{2}-\sqrt{2}} = \frac{4\sqrt{2}}{\sqrt{2}-\sqrt{2}} = \frac{2(\sqrt{2}+\sqrt{2})}{\sqrt{2}-\sqrt{2}} \quad (6)$$

$$\frac{2(\sqrt{2}+\sqrt{2})}{(\sqrt{2}-\sqrt{2})} \times \frac{(\sqrt{2}+\sqrt{2})}{(\sqrt{2}+\sqrt{2})} = \frac{4\sqrt{2}+4}{1} \Rightarrow \sqrt{4+4\sqrt{2}} = \sqrt{(1+\sqrt{2})^2} = 1+\sqrt{2} \rightarrow -2 = \boxed{\sqrt{2}} \quad (7)$$

$$\text{ب) } 2 \times \frac{1}{14} \times \frac{1}{14} \times \frac{1}{14} = 2 \times \frac{1}{14} \times 2 \times \frac{1}{14} \times \frac{1}{14} = \frac{1}{14} \times \frac{1}{14} = \frac{1}{196} \quad (8)$$

$$\frac{n^a (n^0 + n^1 + n^2 + n^3 + n^4 + n^5)}{n^{a-2} (1 + 2^0 + 2^1 + 2^2 + 2^3 + 2^4 + 2^5)} = \frac{n^a \times 144}{n^{a-2} \times 64} = n^2 \rightarrow n^2 \times 2^{a-2} = \frac{144 \times 2^a}{64} = \frac{144 \times 2^a}{2^6} = 144 \times 2^{a-6} = 144 \times 2^2 = 576 \quad (9)$$

$$a^2 + b^2 = m \Rightarrow (m - rab)^2 (m + rab)^2 = (m^2 - r^2 a^2 b^2)^2 = (a^2 + b^2 + r^2 a^2 b^2 - r^2 a^2 b^2)^2 = (a^2 + b^2)^2 \quad (10)$$

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

$$t = \frac{2(\sqrt{2}-1)}{2-\sqrt{2}} \times \frac{(2+\sqrt{2})}{(2+\sqrt{2})} = \frac{2(\sqrt{2}-1)(2+\sqrt{2})}{(2-\sqrt{2})(2+\sqrt{2})} = \frac{4\sqrt{2}+4}{2-2} = \frac{4\sqrt{2}+4}{0} = t \quad (11)$$

$$\left(a + \frac{1}{a} \right)^2 - 2 = 2t$$

$$a = \sqrt[4]{2-4\sqrt{2}} \rightarrow a^4 = 2-4\sqrt{2}, \frac{1}{a^4} = \frac{1}{2-4\sqrt{2}} = \frac{2+4\sqrt{2}}{(2-4\sqrt{2})(2+4\sqrt{2})} = \frac{2+4\sqrt{2}}{4-16} = \frac{2+4\sqrt{2}}{-12} = -\frac{1}{3} - \frac{\sqrt{2}}{3} \quad (12)$$

$$\left(a^2 + \frac{1}{a^2} + 2 - 2 \right)^2 = 2t \Rightarrow \left(a^2 + \frac{1}{a^2} \right)^2 = 2t \Rightarrow a^4 + \frac{1}{a^4} + 2 = 2t \Rightarrow 2-4\sqrt{2} + \frac{1}{2-4\sqrt{2}} + 2 = 2t \Rightarrow 4-4\sqrt{2} + \frac{2+4\sqrt{2}}{-12} + 2 = 2t \Rightarrow 4-4\sqrt{2} - \frac{1}{3} - \frac{\sqrt{2}}{3} + 2 = 2t \Rightarrow 6-4\sqrt{2} - \frac{1}{3} - \frac{\sqrt{2}}{3} = 2t \Rightarrow t = 3-2\sqrt{2} - \frac{1}{6} - \frac{\sqrt{2}}{6} \quad (13)$$

$$\frac{1}{a} - \frac{1}{a} = \frac{9}{\sqrt{2}} - \frac{9}{\sqrt{2}} = \frac{9-9\sqrt{2}}{\sqrt{2}} = \frac{9(1-\sqrt{2})}{\sqrt{2}} \Rightarrow a^{\frac{1}{\sqrt{2}}} = \frac{1}{\sqrt{2}}$$

$$\frac{1}{\sqrt{2}} = \frac{9}{a} \Rightarrow a = 9\sqrt{2} \quad (14)$$

$$\frac{1}{\sqrt{2}} \times \frac{(\sqrt{2}-1)}{(\sqrt{2}-1)} = \boxed{4-3\sqrt{2}}$$

$$\frac{1}{\sqrt{2}} = \frac{9}{a} \Rightarrow a = 9\sqrt{2} \quad (15)$$

$$\sqrt{a+a} + \sqrt{a-a} = \sqrt{\frac{a}{r}} \quad (16)$$