نام و نام خانوادگی ......محمد عباسی...... پاسخنامه تشریحی تکلیف شماره ...۱۲... کلاس ...دهم (ب)...

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رقم یکان عدد $(1!+3!+\dots+23!)(1!+2!+\dots+50!)$

$1! \to 1$

$2! \to 2$

$3! \to 6$

$4! \to 4$

$5!, 6!, 7!, \dots, 50! \to 0$

$\to (1+6)(2+4) = 7\times 6 = 42 \to$ **۲**

پاسخ

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الف) $\sqrt[4]{(4+\sqrt{7})^{-1}}\,\sqrt{1+\sqrt{7}} = \sqrt[4]{\left(\frac{8+2\sqrt{7}}{2}\right)^{-1}}\,\sqrt{1+\sqrt{7}} = \sqrt{\frac{\sqrt{2}}{1+\sqrt{7}}\times\frac{1+\sqrt{7}}{1}} = \boxed{\sqrt[4]{2}}$ پاسخ

ب) $\frac{\sqrt{2}+\sqrt{5}}{(\sqrt{2}+\sqrt{5})\sqrt{2}}\times\left(\sqrt{\left(\sqrt{3-\sqrt{5}}-\sqrt{3+\sqrt{5}}\right)^2}\right) = \frac{1}{\sqrt{2}}\times(-\sqrt{2}) = \boxed{-1}$ پاسخ

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

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الف) $\frac{(\sqrt{2}+\sqrt{3})(2+\sqrt{3}-\sqrt{6})}{\dots} - \frac{2}{\sqrt{3}-1} = \frac{3+\sqrt{6}-\sqrt{3}-\sqrt{2}-2}{\sqrt{3}-1} = \frac{(1-\sqrt{3})+(\sqrt{6}-\sqrt{2})}{\sqrt{3}-1}$

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

ب) $\frac{(\sqrt{3}-1)(3+1+\sqrt{3})}{4+\sqrt{3}} + \frac{2+\sqrt{3}}{\dots} = \sqrt{3}-1+2+\sqrt{3} = \boxed{1+2\sqrt{3}}$ پاسخ

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

$= (\sqrt{3}+\sqrt{2})(\sqrt{2})-2 = \sqrt{6}+2-2 = \boxed{\sqrt{6}}$ پاسخ

ب) $\sqrt[4]{2^3}\times\sqrt[3]{2}\times\sqrt[12]{2^{13}} = 2^{\frac{3}{4}}\times 2^{\frac{1}{3}}\times 2\times 2^{\frac{1}{12}} = 2\times 2^{\frac{9+4+1}{12}} \dots$ $\boxed{12}$ پاسخ

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$\frac{3^n(1+3+9+27+81+243)}{2^{n-2}(1+2+4+8+16+32)} = 52 \to 2^{n-2}\times 63\times 52 = 3^n\times 364$

$2^{n-2}\times 63 = 3^n\times 7$

$2^{n-2}\times 3^2 = 3^n$

پاسخ $\boxed{n = 2}$

$(a^2+b^2-2ab)^2(a^2+b^2+2ab)^2 = ((a-b)^2(a+b)^2)^2 = (a^2-b^2)^4 = ((a^2-b^2)^2)^2$

$= (a^4+b^4-2a^2b^2)^2 = (\sqrt{9}+2\times\sqrt{9}\times\sqrt{2}+2-2\sqrt{2})^2 = (2\sqrt{9}-2\sqrt{2})^2$

$= (2(\sqrt{9}-\sqrt{2}))^2 = 4\times(9+2-2\sqrt{18}) = 4\times(11-2\sqrt{2})$

$44-8\sqrt{2} = t(11-2\sqrt{2}) \longrightarrow \boxed{t=4}$ ٤

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

$(a^2+\frac{1}{a^2}+2-2)^2 = (a^2+\frac{1}{a^2})^2 = a^4+\frac{1}{a^4}+2 = 7-4\sqrt{2}+\frac{1}{7-4\sqrt{2}}+2$

$7-4\sqrt{2}+\frac{7+4\sqrt{2}}{-32} + 2 = 9+7-8 = 8 = 2^t \longrightarrow \boxed{t=3}$ ٤

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$(2A)^{-\frac{1}{2}} = (2^{\frac{10}{15}}\times 2^{\frac{5}{15}}\times 2^{\frac{3}{15}}\times 2^{\frac{2}{15}})^{-\frac{1}{2}} = (2^{\frac{20}{15}})^{-\frac{1}{2}} = (2^{\frac{4}{3}})^{-\frac{1}{2}} = 2^{-1}$

$= \boxed{\frac{1}{2}}$ ٤

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$\sqrt[7]{a} = a^{\frac{1}{7}} \longrightarrow a^{\frac{1}{7}} = 2^{\frac{2}{7}}\times a^{\frac{1}{7}} \longrightarrow 1 = 2^{\frac{2}{7}}\times a^{\frac{1}{7}} \longrightarrow 2^{-\frac{2}{7}} = a^{\frac{1}{7}} \longrightarrow a = \frac{1}{2^2\sqrt{2}}$

$\frac{(\frac{1}{a}-2)}{1+\sqrt{2}} = \frac{2\sqrt{2}-2}{1+\sqrt{2}} = \frac{2(\sqrt{2}-1)}{\sqrt{2}+1}\times\frac{\sqrt{2}-1}{\sqrt{2}-1} = \frac{2(2+1-2\sqrt{2})}{2-1} = \frac{6(2-\sqrt{2})}{2}$

$= \boxed{6-3\sqrt{2}}$ ٤

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$(\sqrt{x+a}-\sqrt{x-4})(\sqrt{x+a}+\sqrt{x-4}) = x+a-x+4 = a+4$.

$a+4 = 2(\sqrt{x+a}+\sqrt{x-4}) \xrightarrow{\div 2} \sqrt{x+a}+\sqrt{x-4} = \frac{a+4}{2}$

$\longrightarrow \sqrt{x+a}+\sqrt{x-4}-2 = \frac{a}{2}+2-2 = \boxed{\frac{a}{2}}$ ٤

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