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

۲۰ عالی نوشتی!

۱	۲	رقم یکان عدد $(1!+2!+3!+\dots+5!+\dots+100!)(1!+2!+\dots+32!)$ $1 \to 1!$, $2 \to 2!$, $6 \to 3!$, $4 \to 4!$, $0 \to 5!, 6!, 7!, \dots, 100!$ $\to (1+6)(2+4) = 7\times 6 = 42 \to \boxed{2}$ پاسخ
۲	۲	الف) $\sqrt[4]{(4+\sqrt{28})^{-1}}\,\sqrt{1+\sqrt7} = \sqrt[4]{\left(\frac{8+2\sqrt7}{2}\right)^{-1}}\,\sqrt{1+\sqrt7} = \sqrt{\frac{\sqrt2}{1+\sqrt7}\times\frac{1+\sqrt7}{1}} = \boxed{\sqrt[4]{2}}$ پاسخ ب) $\frac{\sqrt3+\sqrt5}{(\sqrt3+\sqrt5)\sqrt2}\left(\sqrt{\left(\sqrt{4-\sqrt{15}}-\sqrt{4+\sqrt{15}}\right)^2}\right) = \frac{1}{\sqrt2}\times(-\sqrt2) = \boxed{-1}$ $3-\sqrt5+4+\sqrt5-4=2$ پاسخ
۳	۲	الف) $\frac{(\sqrt2+\sqrt3)(2+3-\sqrt6)}{5-\sqrt6} - \frac{2}{\sqrt3-1} = \frac{3+\sqrt6-\sqrt3-\sqrt2-2}{\sqrt3-1} = \frac{(1-\sqrt3)+(\sqrt6-\sqrt2)}{\sqrt3-1}$ $= \frac{(\sqrt2-1)(\sqrt3-1)}{\sqrt3-1} = \boxed{\sqrt2-1}$ پاسخ ب) $\frac{(\sqrt3-1)(3+1+\sqrt3)}{4+\sqrt3} + \frac{2+\sqrt3}{1} = \sqrt3-1+2+\sqrt3 = \boxed{1+2\sqrt3}$ پاسخ
۴	۲	الف) $\sqrt{\frac{1+\sqrt3+\sqrt3-1+2\sqrt2}{\sqrt3-\sqrt2}} - 2 = \sqrt{\frac{2(\sqrt3+\sqrt2)}{(\sqrt3-\sqrt2)}\times\frac{\sqrt3+\sqrt2}{\sqrt3+\sqrt2}} - 2 = \sqrt{\frac{2(\sqrt3+\sqrt2)^2}{1}} - 2$ $= (\sqrt3+\sqrt2)(\sqrt2)-2 = \sqrt6+2-2 = \boxed{\sqrt6}$ پاسخ ب) $\sqrt[4]{2^3}\times 3\sqrt[3]{2}\times\sqrt[12]{2^{4}} = 2^{\frac34}\times 3\times 2^{\frac13}\times 2^{\frac{1}{12}} = 3\times 2^{\frac{9+4+11}{12}} = 3\times 2^2 = \boxed{12}$ پاسخ
۵	۲	$\frac{3^n(1+3+9+27+81+243)}{2^{n-2}(1+2+4+8+16+32)} = 52 \longrightarrow 2^{n-2}\times 63\times \cancel{52} = 3^n\times 364$ $2^{n-2}\times 63 = 3^n\times 7$ $2^{n-2}\times 3^2 = 3^n$ $\boxed{2 = n}$ پاسخ

$(a^2+b^2-2ab)^2(a^2+b^2+2ab)^2 = ((a-b)^2(a+b)^2)^2 = (a^2-b^2)^4 = ((a^2-b^2)^2)^2$ $= (a^4+b^4-2a^2b^2)^2 = \left(\sqrt{6+2+\sqrt{6}-2}-2\sqrt{2}\right)^2 = (2\sqrt{6}-2\sqrt{2})^2$ $= (2(\sqrt{6}-\sqrt{2}))^2 = 4\times(6+2-2\sqrt{12}) = 16\times(2-\sqrt{3})$ $16(2-\sqrt{3}) = k(2-\sqrt{3}) \longrightarrow \boxed{k=16}$ صحیح	۲	۶
$\left(a+\frac{1}{a}-\sqrt{2}\right)^2\left(a+\frac{1}{a}+\sqrt{2}\right)^2 = \left(\left(a+\frac{1}{a}\right)^2-2\right)^2 =$ $\left(a^2+\frac{1}{a^2}+2-2\right)^2 = \left(a^2+\frac{1}{a^2}\right)^2 = a^4+\frac{1}{a^4}+2 = 7-4\sqrt{3}+\frac{1}{7-4\sqrt{3}}+2$ $7-4\sqrt{3}+\frac{7+4\sqrt{3}}{49-48}+2 = 7+7+2 = 16 = 2^k \longrightarrow \boxed{k=4}$ صحیح	۲	۷
$(2A)^{-\frac{1}{3}} = \left(2^{\frac{15}{15}}\times 2^{\frac{6}{15}}\times 2^{\frac{20}{15}}\times 2^{\frac{4}{15}}\right)^{-\frac{1}{3}} = \left(2^{\frac{45}{15}}\right)^{-\frac{1}{3}} = (2^3)^{-\frac{1}{3}} = 2^{-1}$ $= \boxed{\frac{1}{2}}$ صحیح	۲	۸
$\sqrt[7]{a} = a^{\frac{1}{7}} \rightarrow a^{\frac{1}{7}} = 3^3\times a^{\frac{15}{7}} \rightarrow 1 = 3^3\times a^2 \rightarrow 3^{-3} = a^2 \rightarrow a = \frac{1}{3\sqrt{3}}$ $\frac{\frac{1}{a}-3}{1+\sqrt{3}} = \frac{3\sqrt{3}-3}{1+\sqrt{3}} = \frac{3(\sqrt{3}-1)}{\sqrt{3}+1}\times\frac{\sqrt{3}-1}{\sqrt{3}-1} = \frac{3(3+1-2\sqrt{3})}{3-1} = \frac{\cancel{6}(2-\sqrt{3})}{\cancel{2}}$ $= \boxed{6-3\sqrt{3}}$ صحیح	۲	۹
$(\sqrt{x+a}-\sqrt{x-4})(\sqrt{x+a}+\sqrt{x-4}) = x+a-x+4 = a+4$ $a+4 = 2(\sqrt{x+a}+\sqrt{x-4}) \xrightarrow{\div 2} \sqrt{x+a}+\sqrt{x-4} = \frac{a+4}{2}$ $\longrightarrow \sqrt{x+a}+\sqrt{x-4}-2 = \frac{a}{2}+2-2 = \boxed{\frac{a}{2}}$ صحیح	۲	۱۰