Subject. ۲۱ تست -
Day. Month. Year.

دهم ریاضی C — ۱۱ اردیبهشت ۱۴۰۱

$(1+4+5+\cdots+10)(2+4+6+\cdots+10) =$ (۱)

$7 \times 4 =$ (۴) ✓ ۲

(۲)

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

$\sqrt[4]{2}$ ✓

ب) $\frac{\sqrt{2}+\sqrt{5}}{\sqrt{10}+2\times\sqrt{10}-2}\left(\sqrt{3-\sqrt{5}}-\sqrt{3+\sqrt{5}}\right) =$

$\frac{2\sqrt{5}}{\sqrt{20}-2\sqrt{2}+\sqrt{50}-2\sqrt{5}}\left(\sqrt{3-\sqrt{5}}-\sqrt{3+\sqrt{5}}\right)$ ۲

$\frac{10-4}{6}$

$\frac{12\sqrt{2}}{6\sqrt{2}}\left(\sqrt{3-\sqrt{5}}-\sqrt{3+\sqrt{5}}\right) =$

$\frac{\sqrt{6-2\sqrt{5}}}{(\sqrt{5}-1)2} - \frac{\sqrt{6+2\sqrt{5}}}{2} = \frac{\sqrt{5}-1-\sqrt{5}-1}{2}$ ✓

Subject.....

Day..... Month..... Year.....

أ) $\frac{2\sqrt{2}+2\sqrt{3}\times(2+\sqrt{6})}{5-\sqrt{4}\times(5+\sqrt{6})} - 2(\sqrt{3}-1)^{-1} = \frac{10\sqrt{2}+8\sqrt{3}+12\sqrt{2}+6\sqrt{2}}{25-24} = 19\sqrt{2}$ (3)

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

$\boxed{\sqrt{2}-1}$ ✓ (2)

ب) $\frac{3\sqrt{3}-1(4-\sqrt{3})}{4+\sqrt{3}(4-\sqrt{3})} + (2-\sqrt{3})^{-1} = \frac{12\sqrt{3}-9-4+\sqrt{3}}{16-3} + \frac{1}{(2+\sqrt{3})}$

$\frac{1}{2-\sqrt{3}\times(2+\sqrt{6})} = \sqrt{3}+1 + \frac{2+\sqrt{3}}{4-3} = \boxed{3+2\sqrt{3}}$

A (4)

أ) $\frac{\sqrt{1+\sqrt{3}} + \sqrt{\sqrt{3}-1}}{\sqrt{\sqrt{3}-\sqrt{2}}} - 2 = \sqrt{4+2-2} = \sqrt{4}$ ✓

$A^2 = \frac{4+\sqrt{3}+\sqrt{6}-1+2\sqrt{3-1}}{\sqrt{3}-\sqrt{2}} = \frac{2\sqrt{3}+2\sqrt{2}}{\sqrt{3}-\sqrt{2}} \times \frac{(\sqrt{6}+\sqrt{2})}{(\sqrt{6}+\sqrt{2})}$

$\frac{4+2\sqrt{4}+2\sqrt{4}+4}{1} = 10+4\sqrt{4} = (\sqrt{4}+2)^2 \Rightarrow A = \sqrt{4}+2$

Subject.

Day. Month. Year.

ب) $\sqrt[3]{2^{8+2}} \times \sqrt[4]{16 \times 2} \times \sqrt[11]{2^{12}}$

$2^{\frac{2}{3}} \times 2^{\frac{1}{4}} \times 2^{\frac{1}{11}} = 4 \times 2^{\frac{8+2+1}{11}} = 4$ (۱۲)

(۵)

$$\frac{3^{2n}\left(1+3^2+9+81+243+729\right)}{3^{n-2}\left(1+\left(1+3+9+27+81\right)^2\right)} = 2^2 \times 13$$

$$\frac{3^{2n} \times 364}{3^{n-2} \times 91} = 4 \times 13 \Rightarrow 3^{2n} = 3^{n-2} \times 3^2$$

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

$2n-2 = n-2$

$n-2=0$

$n=2$

(۴)

$$(a+b)^3(a-b)^4 = 4(2-\sqrt{3})$$

$$(a^2-b^2)^4 = 4(2-\sqrt{3})$$

$$(\sqrt{\sqrt{7}-2} - \sqrt{\sqrt{7}+2})^4 = 4(2-\sqrt{3})$$

$$(\sqrt{7}-2-\sqrt{7}-2)^4 = 4(2-\sqrt{3})$$

$$4 = \frac{4}{2-\sqrt{3}}$$

(۱۵)

$$(4)^4 = 4(2-\sqrt{3})$$

پایین صفحه بخون:

$4 = 4(2-\sqrt{3})$ ⇒

Day. Month. Year

(٧)

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

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

$t=4$ ✓ (ب)

$$a = \sqrt[4]{(2-\sqrt{2})^2} = \sqrt{2-\sqrt{2}}$$

(٨)

$$A = 2^{\frac{2}{5}} \times 2^{\frac{4}{15}} \times 2^{\frac{4}{3}} = 2^{\frac{9+4+20}{15}} = 2^2$$

$$(2A)^{-\frac{1}{2}} = \frac{1}{2}$$ ✓ (ج)

(٩)

$$\sqrt[7]{a} = 2\sqrt{2} \times a^{\frac{15}{7}} \Rightarrow a^{\frac{1}{7}} = 2^3 \times a^{\frac{15}{7}}$$

$$a^{\frac{1}{7}-\frac{15}{7}} = 2^{-2} \Rightarrow a^{-2} = 2^{-2} \Rightarrow a^{-1} = 2^{-1} \Rightarrow a = 2$$

$a>0$

$$\frac{2\sqrt{2}-2}{1+\sqrt{2}} = \frac{2\sqrt{2}-9-2+2\sqrt{2}}{1-2} = \frac{9\sqrt{2}-11}{-2}$$

(١١د)

$$9-2\sqrt{2}$$

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

$\rightarrow 2(2-\sqrt{2}) = 4-2\sqrt{2}$

Subject.

Day..... Month..... Year.

(۱۰)

$$\left(\sqrt{x+a}+\sqrt{x-\varepsilon}\right)\left(\sqrt{x+a}-\sqrt{x-\varepsilon}\right)=$$

$$x+a-x+\varepsilon = ۲\left(\sqrt{x+a}+\sqrt{x-\varepsilon}\right)$$

$$\frac{a}{۲}+۲=\sqrt{x+a}+\sqrt{x-\varepsilon}$$

$$\boxed{\frac{a}{۲}=\sqrt{x+a}+\sqrt{x-\varepsilon}-۲}$$

(۵) ✓

$$\left((a-b)^{۲}\right)^{۲}\left((a+b)^{۲}\right)^{۲}=(a^{۲}-b^{۲})^{۴} \quad -۶$$

$$\sqrt{۶}-۲+\sqrt{۶}+۲-۲\sqrt{(\sqrt{۶}-۲)(\sqrt{۶}+۲)}\,)^{۲} = (۲\sqrt{۶}-۲\sqrt{۲})^{۲}$$

$$۴(۸-۴\sqrt{۳}) = ۱۶(۲-\sqrt{۳})$$

متوازی‌الاضلاع است.