

Date:

تاریخ: 27

Sat. Sun. Mon. Tue. Thu. Wed. Fri.

Subject:

کتاب حاتی - دهم دختر B

سوال 1:

از این دو رقم یان مساوی است!

$$(11 + 13 + 15 + 17 + \dots) (21 + 23 + \dots) = 4 \times 7 = 28$$

$$1 + (1 \times 2 \times 3) = 7$$

$$\frac{(1 \times 3)}{2} + \frac{(1 \times 2 \times 4)}{2 \times 2} = 2 + 2 = 4 \Rightarrow 4 \times 7 = 28$$

لر رقم یان: 2

سوال 2:

الف)

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

$$= \sqrt[4]{\frac{3+2\sqrt{2}}{2+\sqrt{2}}} \Rightarrow \sqrt[4]{\frac{2(2+\sqrt{2})}{2+\sqrt{2}}} = \sqrt[4]{2}$$

ب)

$$\frac{\sqrt{2}+\sqrt{5}}{\sqrt{10}+2} = \frac{\sqrt{2}+\sqrt{5}}{\sqrt{2}\sqrt{5}+(\sqrt{2})^2} = \frac{\sqrt{2}+\sqrt{5}}{\sqrt{2}(\sqrt{5}+\sqrt{2})} = \frac{1}{\sqrt{2}}$$

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

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

سوال 3:

الف)

$$\frac{\sqrt{8}+\sqrt{27}}{5-\sqrt{4}} = \frac{(2\sqrt{2}+3\sqrt{3})(5+\sqrt{4})}{(5-\sqrt{4})(5+\sqrt{4})} = \frac{10\sqrt{2}+2\sqrt{12}+15\sqrt{3}+3\sqrt{18}}{19}$$

$$\frac{10\sqrt{2}+4\sqrt{3}+15\sqrt{3}+9\sqrt{2}}{19} = \frac{19\sqrt{2}+19\sqrt{3}}{19} = \frac{19(\sqrt{2}+\sqrt{3})}{19} = \sqrt{2}+\sqrt{3}$$

$$2(\sqrt[4]{9}-1)^{-1} = 2(\sqrt{3}-1)^{-1} = \frac{2}{\sqrt{3}-1} = \frac{2(\sqrt{3}+1)}{3-1} = \sqrt{3}+1$$

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$$(a^p + b^p - 2ab)^p (a^p + b^p + 2ab)^p = (a-b)^p (a+b)^p \quad \text{سوال ٩}$$

$$\Rightarrow ([(a-b)(a+b)]^p)^p = [(a^p - b^p)^p]^p \Rightarrow^* (a^{\varepsilon} - 2a^p b^p + b^{\varepsilon})^p$$

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

$$b^{\varepsilon} = (\sqrt[p]{\sqrt{4}+2})^{\varepsilon} = \sqrt{4}+2$$

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

$$\Rightarrow^* (\sqrt{4}-2-2\sqrt{p}+\sqrt{4}+2)^p = (2\sqrt{4}-2\sqrt{p})^p = \varepsilon (\sqrt{4}-\sqrt{p})^p$$

$$\Rightarrow \varepsilon (4+p - \frac{2\sqrt{4p}}{\varepsilon\sqrt{p}}) \Rightarrow 14(2-\sqrt{p}) = \frac{t}{\varepsilon} (2-\sqrt{p})$$

$$\boxed{t=14}$$

$$a = \sqrt[p]{4-\varepsilon\sqrt{p}} = \sqrt[p]{(2-\sqrt{p})^2} = \sqrt{2-\sqrt{p}} \Rightarrow a^p = 2-\sqrt{p} \quad \text{سوال ٧}$$

$$\frac{1}{a^p} = \frac{1}{2-\sqrt{p}} \times \frac{2+\sqrt{p}}{2+\sqrt{p}} = \frac{2+\sqrt{p}}{1} = 2+\sqrt{p}$$

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

$$\Rightarrow (a^p + \frac{1}{a^p})^p = (2 - \sqrt{p} + 2 + \sqrt{p})^p = 14$$

$$p^t = p^{\varepsilon} \Rightarrow \boxed{t=\varepsilon}$$

$$A = \sqrt[p]{2\sqrt[p]{14}} \left(\frac{1}{p}\right)^{-\frac{\varepsilon}{p}} = p^{\frac{p}{\omega} \times \frac{\varepsilon}{\omega} \times \frac{\varepsilon}{p}} = p^{\frac{p_0}{\omega}} = \varepsilon \quad \text{سوال ١}$$

$$(2A)^{-\frac{1}{p}} = (2 \times \varepsilon)^{-\frac{1}{p}} = \frac{1}{\sqrt[p]{2 \times p^{\omega}}} = \frac{1}{p} = \frac{1}{\omega} \quad \checkmark$$

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$$\left(\sqrt[n]{a}\right)^n = \left(n \sqrt[n]{a^{\frac{1}{n}}}\right)^n \Rightarrow a = n \sqrt[n]{a^{\frac{1}{n}}}$$

سوال 9:

$$\frac{a^{\frac{1}{n}}}{a} = n^{-n} \rightarrow a^{\frac{1}{n}} = n^{-n} \xrightarrow{\frac{1}{1-n}} (a^{\frac{1}{n}})^{\frac{1}{1-n}} = (n^{-n})^{\frac{1}{1-n}}$$

$$a = n^{-\frac{n}{1-n}} = n^{\frac{n}{n-1}} = \frac{1}{n^{\frac{n}{n-1}}} = \frac{1}{\sqrt[n-1]{n}} = \frac{1}{n \sqrt[n-1]{n}} \rightarrow \frac{1}{a} - n = n \sqrt[n-1]{n}$$

$$\frac{\frac{1}{a} - n}{\sqrt[n-1]{n} + 1} = \frac{n(\sqrt[n-1]{n} - 1)}{\sqrt[n-1]{n} + 1} \times \frac{\sqrt[n-1]{n} - 1}{\sqrt[n-1]{n} - 1} = \frac{n(\sqrt[n-1]{n} - 1)^2}{n} = \frac{n}{n} \times (n+1 - n \sqrt[n-1]{n})$$

$$\Rightarrow n(1 - \sqrt[n-1]{n}) = 1 - n \sqrt[n-1]{n}$$

سوال 10:

$$\sqrt{x+a} - \sqrt{x-\varepsilon} = n \rightarrow (\sqrt{x+a}) = (\sqrt{x-\varepsilon} + n)^2 \rightarrow x+a = (x-\varepsilon) + \varepsilon \sqrt{x-\varepsilon} + \sqrt{x+a} + \sqrt{x-\varepsilon} - n = ?$$

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

$$\Rightarrow a = \varepsilon \sqrt{x-\varepsilon}$$

$$\sqrt{x+a} = \sqrt{x + \varepsilon \sqrt{x-\varepsilon}} \rightarrow \sqrt{x+a} + \sqrt{x-\varepsilon} - n = n + \sqrt{x-\varepsilon} - n = \sqrt{x-\varepsilon}$$

آوا حاسی - دهم