MAKby test 2018
Matematika
3-Qism

№21) $\sqrt[3]{a+\sqrt[3]{a+\sqrt[3]{a\ldots}}}\ldots = 2$

$a + \sqrt[3]{a+\sqrt[3]{a\ldots}} = 8$

$a + 2 = 8$

$\boxed{a = 6}$

$\begin{cases} \sqrt{a-\sqrt{a-\sqrt{a\ldots}}} \\ a = 6 \end{cases} \Rightarrow \sqrt{6-\sqrt{6-\sqrt{6\ldots}}} = y$

$6 - y = y^2$

$\boxed{y = 2}$

Javob: 2

№22) $\cos 10^\circ - 2\cos 50^\circ - \cos 70^\circ =$

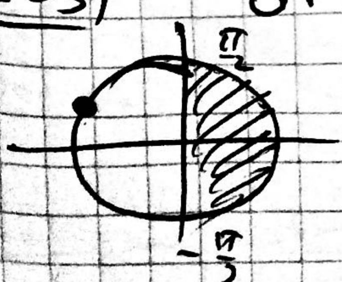
$= -2\sin\frac{10-70}{2} \cdot \sin\frac{10+70}{2} - 2\cos 50^\circ =$

$= 2\sin 30^\circ \cdot \sin 40^\circ - 2\cos 50^\circ =$

$= \sin 40^\circ - 2 \cdot \sin 40^\circ = -\sin 40^\circ =$

$= -\cos 50^\circ$

№23) $\arcsin(\sin 3) = \pi - 3$



Javob! $\pi - 3$

№24 $a^2+b^2=14ab \Rightarrow (a+b)^2=16ab.$

$$\frac{4\lg\frac{a+b}{4}}{\lg\frac{1}{a}+\lg\frac{1}{b}} = \frac{4\cdot\lg\frac{a+b}{4}}{\lg\frac{1}{ab}} =$$

$$= \frac{2\lg\frac{(a+b)^2}{16}}{\lg\frac{1}{ab}} = \frac{2\cdot\lg\frac{16ab}{16}}{\lg\frac{1}{ab}} =$$

$$= \frac{2\lg ab}{\lg 1-\lg ab} = \frac{2\cdot\lg ab}{-\lg ab} = -2$$

№25 $\frac{2a^2+ab-b^2}{a+b} - 2a+1 =$

$$= \frac{a^2-b^2+a^2+ab}{a+b} - 2a+1 = \frac{(a-b)(a+b)+a(a+b)}{a+b} \ldots$$

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

$$= 1-b$$

№26 $\begin{cases} a+b \\ 12a-b \end{cases}$ — туз сонар.

$$\frac{a+b}{12a-b} = \frac{7}{19}. \rightarrow \begin{cases} a+b=7. \\ 12a-b=19 \end{cases}$$

$$13a=26$$

$$a=2$$

№27) $\frac{9x^2-6x+1}{9} = (x+a)^2$ $\quad a-?$

$9x^2-6x+1 = 9(x^2+2ax+a^2)$

$9x^2-6x+1 = 9x^2+18ax+9a^2$

$-6x = 18ax$

$\boxed{a = -3^{-1}}$ $\quad$ Javob: $\boxed{a = -\frac{1}{3}}$

№28) $x = \sqrt{42-\sqrt{42-\sqrt{42}\cdots}}$

$x^2 = 42 - x \Rightarrow \boxed{x = 6}$

$y = \sqrt{6+\sqrt{6+\sqrt{6}}}$

$y^2 = 6 + y \Rightarrow \boxed{y = 3}$

$z = \sqrt{3\sqrt{3\sqrt{3}}}\cdots \Rightarrow \boxed{z = 3}$

$z^2 = 3 \cdot z$

$x+y+z = 6+3+3 = 12$

№29) $x\sqrt{x} - 7\sqrt{x} = 6$. 1)

$x - \sqrt{x} - ?$

$$\begin{array}{l|l} x\sqrt{x} - 7\sqrt{x} & x - \sqrt{x} \\ x\sqrt{x} - x & \sqrt{x} + 1 \\ \hline x - 7\sqrt{x} & \\ x - \sqrt{x} & \\ \hline -6\sqrt{x} & \end{array}$$

2) $(\sqrt{x}+1)(x-\sqrt{x}) = 6 + 6\sqrt{x}$.

$(\sqrt{x}+1)(x-\sqrt{x}) = 6(\sqrt{x}+1)$

$x - \sqrt{x} = 6$.

Javob: 6.

№30) $7 + 3x \leq 5x - 10$.

$17 \leq 2x$

$x \geq 8{,}5$ Javob: $x \geq 8{,}5$

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