

Общий балл	Дата	Ф.И.О. Жюри	Подпись
145	20.03.25	Геллерман А	
Шифр			918429

3. $a_1 = 25$ $a_{2025} = 625$

$$a_n = a_1 + d(n-1) \Rightarrow d = \frac{a_{2025} - a_1}{(2025-1)} = \frac{600}{2024} = \frac{75}{253}$$

$$\frac{1}{\sqrt{a_1} + \sqrt{a_2}} + \frac{1}{\sqrt{a_2} + \sqrt{a_3}} + \dots + \frac{1}{\sqrt{a_{2024}} + \sqrt{a_{2025}}} =$$

$$= \frac{\sqrt{a_1} - \sqrt{a_2}}{a_1 - a_2} + \frac{\sqrt{a_2} - \sqrt{a_3}}{a_2 - a_3} + \dots + \frac{\sqrt{a_{2024}} - \sqrt{a_{2025}}}{a_{2024} - a_{2025}}$$

$a_{n+1} = a_n + d$

$$\frac{\sqrt{a_1} - \sqrt{a_2}}{a_1 - (a_1 + d)} + \frac{\sqrt{a_2} - \sqrt{a_3}}{a_2 - (a_2 + d)} + \dots + \frac{\sqrt{a_{2024}} - \sqrt{a_{2025}}}{a_{2024} - (a_{2024} + d)} =$$

$$= \frac{\sqrt{a_1} - \sqrt{a_2}}{-d} + \frac{\sqrt{a_2} - \sqrt{a_3}}{-d} + \dots + \frac{\sqrt{a_{2024}} - \sqrt{a_{2025}}}{-d} =$$

$$= -\frac{1}{d} (\sqrt{a_1} - \sqrt{a_2} + \sqrt{a_2} - \sqrt{a_3} + \dots + \sqrt{a_{2024}} - \sqrt{a_{2025}}) =$$

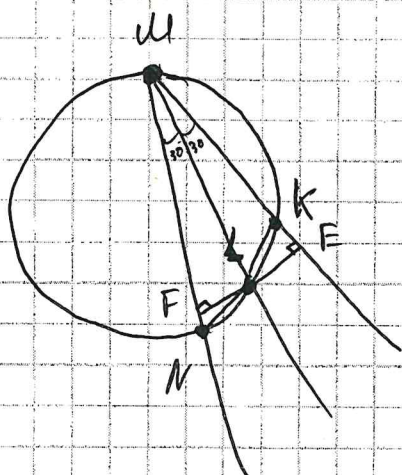
$$= -\frac{1}{d} (\sqrt{a_1} - \sqrt{a_{2025}}) = \frac{\sqrt{625} - \sqrt{25}}{\frac{75}{253}} =$$

$$= \frac{253 \cdot 20}{75} = \frac{1012}{15} = 67 \frac{7}{15}$$

75

1/2/3/4/5
2/7/7/7/7

5.



$$\sum_{\mu \in L_K} = 81$$

$$\angle LMK = \angle NML = 30^\circ$$

ММ + МК - ?

Don.: $\angle F \perp \angle M \angle E \perp \angle K$

ММЛК - вписан в окр.

$$120 - \angle N M K = \angle N L K = 120$$

Рассмотр. $F_{ME}L$: $\angle FLE = 360^\circ - \angle LFM - \angle FME -$

$$\angle FLE = 120$$

$$\angle MDE = 120^\circ$$

$\angle WLK = 120^\circ$

$$\Rightarrow \langle WLF \rangle = \langle E \rangle_K$$

CFK - only.

$$A \models F \subseteq E \Rightarrow \mu F = \mu E$$

(no 2) $\langle : \langle LFM = \langle LEM$

$$\angle FML = \angle EML$$

$$FL = LF = k$$

и 1 стороне: ML -объ.

$$\angle NLF = \angle ELK$$

$$\Rightarrow \Delta LFN \approx \Delta LFK$$

$$\angle WFL = \angle LEK$$

(по $2 < \dots$ и современе)

А М L F - прымаў.!

$$F_N = K E = X$$

$$t_{g, FmL} = \frac{FL}{F_m} = \frac{h}{u_F} = \frac{\sqrt{3}}{3} \Rightarrow u_F = \sqrt{3} h$$

Δ. Μ. Λ. Ε. - ηρώδης

$$t_{gLE} = \frac{LE}{uE} = \frac{h}{uE} = \frac{\sqrt{3}}{3} \Rightarrow uE = \sqrt{3} h$$

$$\mu_N = \mu_F + x = \sqrt{3}h + x \quad \mu_K = \mu_E - x = \sqrt{3}h - x$$

$$\mu F = \mu N - x$$

$$\mu_E \geq \mu_K + x$$

$$M_N - x = M_K + x$$

$$MF = MR$$

$$S_{\text{max CK}} = S_{\text{LNM}} + S_{\text{LKM}} = \frac{h \cdot \cancel{uN} + h \cdot \cancel{uK}}{2} = \frac{h}{2} (\sqrt{3}h + \cancel{x} + \sqrt{3}h - \cancel{x})$$



Открытая региональная
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5. Продолжение.

$$S_{MNCK} = \frac{h}{2} \cdot 2\sqrt{3}h = 84 \Rightarrow h = \frac{9}{\sqrt[4]{3}} = 3\sqrt[4]{3}$$

$$MN + MK = 2\sqrt{3}h = 6 \cdot \sqrt[4]{9 \cdot 3} = 6 \cdot \sqrt[4]{27}$$

Ответ: $6\sqrt[4]{27}$. ✓