Часть 1

Олимпиада: **Математика, 11 класс (1 часть)**

Шифр: **21101207**

ID профиля: **297322**

Вариант 22

Черновик

a_0

$a_1 = a_0 + d$

$a_2 = a_0 + 2d$

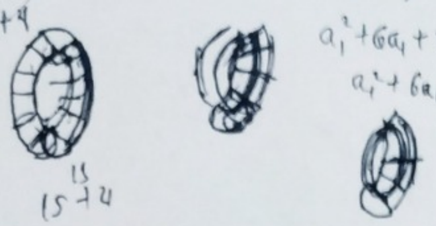
$a_n = a_0 + nd$

$a_{15} = a_0 + 15d$

$S = \frac{a_0 + a_{15}}{2} \cdot 15 = \frac{a_0 + a_0 + 14d}{2} \cdot 15 = (a_0 + 7d) \cdot 15$

$a_1^2 + 21a_1 + 110 < 15a_1 + 105 + 4$

$a_1^2 + 6a_1$



$a_1^2 + 21a_1 + 90 > 15a_1 + 105 - 24$

$a_1^2 + 6a_1 + 24 - 15 > 0$

$a_1^2 + 6a_1 + 9 > 0$

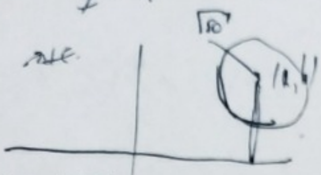
$a_1^2 + 21ad + 90d^2 > 15a_1 + 105d - 24$

$(a_1 + 6d)(a_1 + 15d) > (a_1 + 10d)(a_1 + 11d)$

$25 - 7a = 0$

$a = \frac{25}{7} = 3\frac{4}{7}$

$a_1^2 + 6a_1$



$36 - 36 + 1$

$a_1^2 + 21a_1 + 90 > 15a_1 + 105 - 24$

$a_1^2 + 6a_1 > 1$

$a_1^2 + 21a_1 + 110 < 15a_1 + 105 + 4$

$a_1^2 + 6a_1 + 1 < 0$

$\frac{-6 \pm \sqrt{36-4}}{2} = \frac{-6 \pm \sqrt{32}}{2}$

$-3 \pm 2\sqrt{2}$

$a^2 + b^2 < 50$

$b = 25 - 7a$

$t - 1 > 0$

$t + 1 < 0$

$t > 1$

$(x-a)^2 + (y-b)^2 \leq 50$

$a^2 + b^2 \leq \min(14a + 2b, 50)$

$a^2 + (25 - 7a)^2 = 50$

$2\sqrt{2} = -3$

1) $14a + 2b \geq 50$

$a^2 + 625 + 49a^2 - 50 \cdot 7a = 0$

$a^2 + b^2 \leq 50$

$14a + 2b \geq 50$

$50a^2 + 625 - 350a = 50$

$b \geq 25 - 7a$

$50a^2 - 350a + 575 = 0$

$x^2 + y^2 \leq 50$

$10a^2 - 70a + 115 = 0$

$y \geq 25 - 7x$

$a^2 + b^2 \leq 14a + 2b$

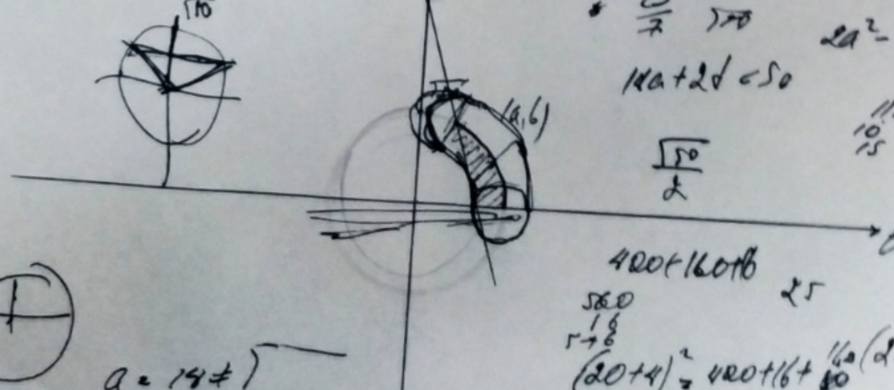
$a^2 - 14a + b^2 - 2b \leq 0$

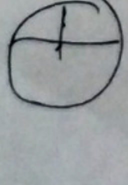
$(a-7)^2 + (b-1)^2 \leq 50$

$a^2 - 14a + 49 + b^2 - 2b + 1$

$2a^2 - 14a + 23 = 0$

$14a + 2d < 50$





$\frac{\sqrt{50}}{2}$

$a = 14 \pm \sqrt{\ }$

$400 + 160 + 16$

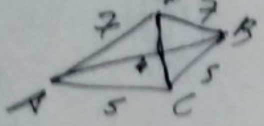
$(20 + 4)^2 = 400 + 16 + 160$

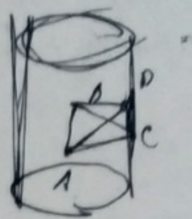
$(25-1)^2 + 7^2$

$\frac{8}{6} + \frac{1}{6} = \frac{9}{6} = \frac{3}{2}$

$2 \cdot 4 \cdot 20 = 160$

$196 + 49$





$S = \frac{\sqrt{3}}{4} a^2$

$R = a \cdot \frac{\sqrt{3}}{2} \cdot \frac{2}{3} = \frac{a}{\sqrt{3}}$

$\sqrt{7^2 - h^2} + \sqrt{5^2 - h^2} = x$

$\frac{a \cdot b \cdot c}{4R} = S$

$49 + 25$

Чистовик   Математика. 11 класс

№1

$\{a_n\}$ – возраст. арифмет. прогрессия, $a_n \in \mathbb{Z}$

~~$a_2 = a_0 + 2d$~~
~~$S_{15} = a_0 + a_1 + a_2 + \dots a_{14} = \frac{a_0 + a_{14}}{2} \cdot 15 = (a_0 + 7d)15$~~
~~$a_7 = a_0 + 7d$~~
~~$a_{16} = (a_0 + 16d)$~~
~~$a_7 a_{16} > S - 24$~~
~~$(a_0 + 7d)(a_0 + 16d) > 15(a_0 + 7d) - 24$~~
~~$a_{11} = a_0 + 11d$~~
~~$a_{12} = a_0 + 12d$~~
~~$a_{11} a_{12} < S + 4$~~

$a_n = a_1 + (n-1)d$

$S_{15} = a_1 + a_2 + a_3 + \dots a_{15} = \frac{a_1 + a_{15}}{2} \cdot 15 = \frac{a_1 + a_1 + 14d}{2} \cdot 15 = (a_1 + 7d)15$

$a_7 a_{16} > S - 24$

$(a_1 + 6d)(a_1 + 15d) > (a_1 + 7d) \cdot 15 - 24$

$a_{11} a_{12} < S + 4$

$(a_1 + 10d)(a_1 + 11d) < 15(a_1 + 7d) + 4$

$$\begin{cases} (a_1 + 6d)(a_1 + 15d) > 15(a_1 + 7d) - 24 \\ (a_1 + 10d)(a_1 + 11d) < 15(a_1 + 7d) + 4 \end{cases}$$

$24 + (a_1 + 6d)(a_1 + 15d) > (a_1 + 10d)(a_1 + 11d) - 4$

$24 + a_1^2 + 21a_1 d + 90d^2 > a_1^2 + 21a_1 d + 110d^2 - 4$

$24 > 20d^2 - 4$

$28 > 20d^2$

$d^2 < 1,4$

$d \in (-\sqrt{1,4}; \sqrt{1,4})$

$d > 0$

$d \in (0; \sqrt{1,4})$

$d \in \mathbb{Z}$

$d = 1$

$$\begin{cases} (a_1 + 6)(a_1 + 15) > 15(a_1 + 7) - 24 \\ (a_1 + 10)(a_1 + 11) < 15(a_1 + 7) + 4 \end{cases}$$

$$\begin{cases} a_1^2 + 6a_1 + 9 > 0 \\ a_1^2 + 6a_1 + 1 < 0 \end{cases}$$

$$\begin{cases} (a_1 + 3)^2 > 0 \\ a_1 \in (-3 - 2\sqrt{2}; -3 + 2\sqrt{2}) \end{cases}$$

$$\begin{cases} a_1 \neq -3 \\ a_1 \in [-5; 0] \end{cases} \quad a_1 \in \mathbb{Z}$$

Ответ: ~~-5; -4; -2; -1; 0; 1; 2; 3; 4; 5~~
-5; -4; -2; -1

21101207 (U297322 MI300909)

Чистовик. Математика, 11класс.

№ 18

$$\begin{cases}(x-a)^2+(y-b)^2\le 50\\ a^2+b^2\le \min(14a+2b,\ 50)\end{cases}$$

1) $14a+2b>50$

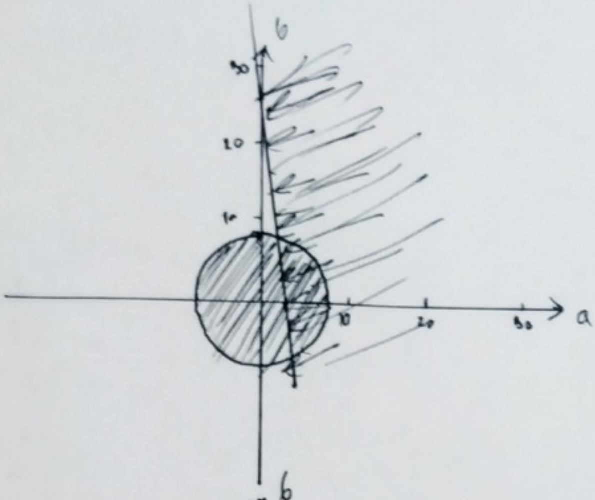
$a^2+b^2\le 50$

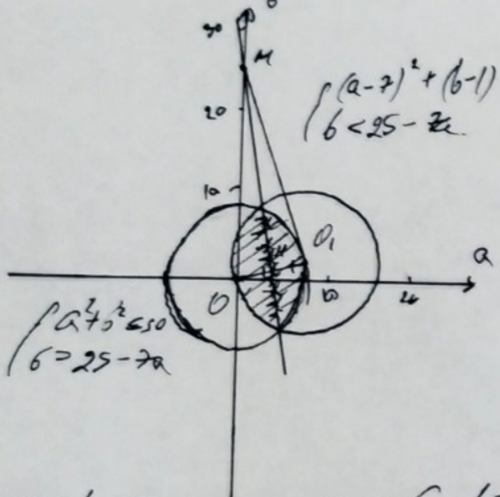
$$\begin{cases}a^2+b^2\le 50\\ b>25-7a\end{cases}$$

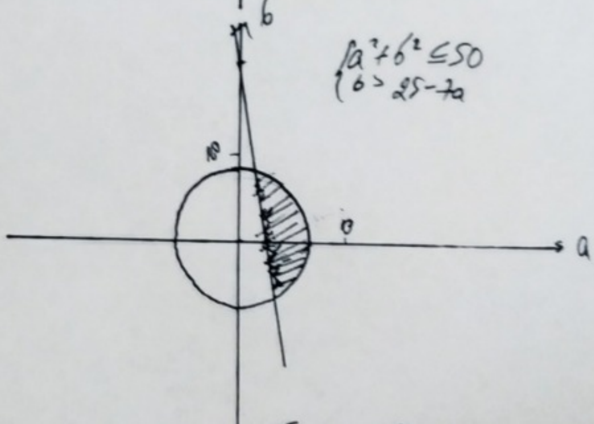
2) $14a+2b<50$

$a^2+b^2\le 14a+2b$

$$\begin{cases}(a-7)^2+(b-1)^2\le 50\\ b<25-7a\end{cases}$$

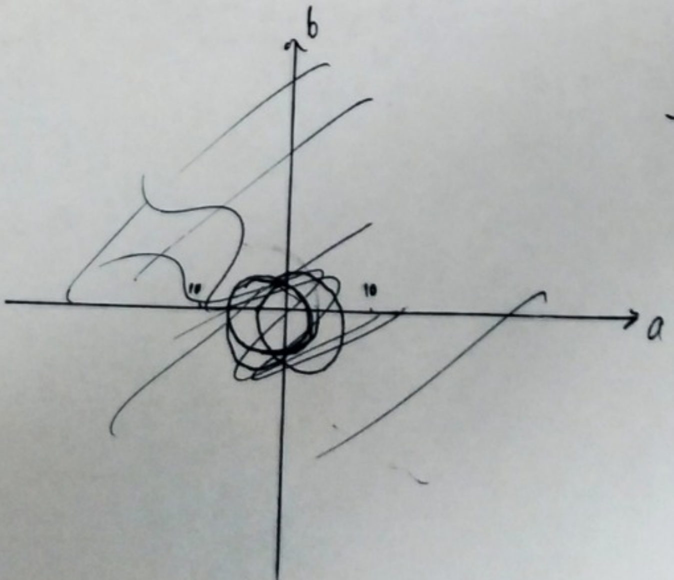


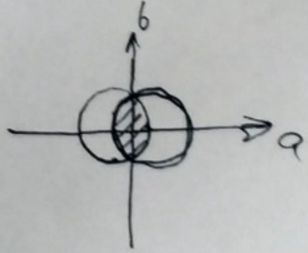




Прямая $b=25-7a$ $\perp$ прямой $b=\frac{a}{7}$. $OM=MO_1=25$. Тогда $O_1H=OH$.

Множество точек (a,b) будет эквивалентно (иметь одинаковые фигуры):

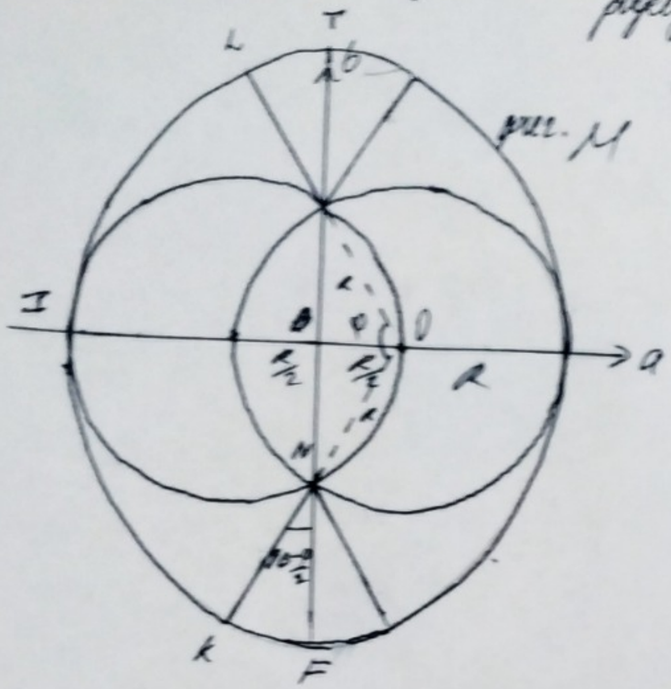




$R = \sqrt{50}$ каждая точка $(a;b)$ является центром окр. с радиусом $\sqrt{50}$;

$(x-a)^2 + (y-b)^2 \le 50$

Чистовик.
Математика, 11кл.



$\cos\frac{\varphi}{2} = \frac{1}{2}$

$\frac{\varphi}{2} = 60^\circ$

$\varphi = 120^\circ = \frac{2\pi}{3}$

$S_{OKL} = \frac{\frac{2\pi}{3}}{2}(2R)^2 = \frac{\pi}{3}\cdot 4R^2 = \frac{4\pi R^2}{3}$

$S_{FIT} = S_{OKL} - 2S_{OND} + 2S_{NKF}$

$S_{OND} = \frac{R}{2}\cdot R\cdot\frac{\sin 60}{2} = \frac{R^2}{4}\cdot\frac{\sqrt{3}}{2} = \frac{\sqrt{3}R^2}{8}$

$S_{NKF} = \frac{\frac{\pi}{6}}{2}\cdot R^2 = \frac{\pi R^2}{12}$

$S_{FIT} = \frac{4\pi}{3}R^2 - 2\cdot\frac{\sqrt{3}}{8}R^2 + 2\cdot\frac{\pi R^2}{12} = \frac{4\pi R^2}{3} - \frac{\sqrt{3}R^2}{4} + \frac{\pi R^2}{6} = \frac{3\pi R^3}{2} - \frac{\sqrt{3}R^3}{4}$

$S_M = 2S_{FIT} = 3\pi R^2 - \frac{\sqrt{3}}{2}R^2 = 3\pi\cdot 50 - \frac{\sqrt{3}}{2}\cdot 50 = 150\pi - 25\sqrt{3}$

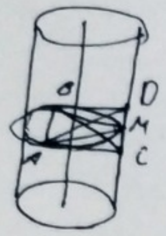
Ответ: $150\pi - 25\sqrt{3}$

Чистовик

Математика, 11 кл.

№ 2.

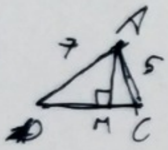
ABCD - тетраэдр.
AB = 4
AC = CB = 5
AD = DB = 7.



Сечение цилиндра, проходящее через т. A и т. B, параллельное оси, должно пересекать CD. Радиус этого сечения будет перпенд. CD. т. M - точка пересечения CD этим сечением.

$\triangle ABM$ вписан в это сечение.

Рассмотрим $\triangle ADC$



Пусть $CD = x$. Тогда $7^2+5^2-2\cdot5\cdot7\cos\angle A = x^2$

$74-70\cos A = x^2$

$\frac{74-x^2}{70} = \cos A$

$\frac{\sin^2 A}{x^2} \to$ min

$\frac{1-\left(\frac{74-x^2}{70}\right)^2}{x^2} \to$ min

$\sin A = \sqrt{1-\left(\frac{74-x^2}{70}\right)^2}$

$S_{ADC} = \frac{7\cdot5}{2}\cdot\sin A = \frac{AM\cdot x}{2}$

$\frac{\sin\angle A}{x} \to$ min

$AM = \frac{35\sin A}{x}$

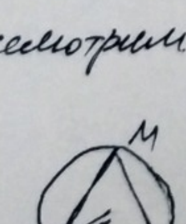
$AM \to$ min

$AM = BM$, т.к. $\triangle ADC = \triangle BDC$.

Рассмотрим $\triangle AMB$.

$AM\cdot\sin\frac{\angle M}{2} = 2$

$\sin\frac{\angle M}{2} = \frac{2}{AM}$



$\sin\angle M \to$ max

$\sin\frac{\angle M}{2} \to$ max

$AM \le 2$

Пусть R - радиус описанной окр

$\frac{(AM)^2\cdot 4}{4R} = S_{ABM}$.

$R = \frac{AM^2}{S_{ABM}} = \frac{AM^2}{AM^2\cdot\frac{\sin\angle M}{2}} = \frac{2}{\sin\angle M}$

т.к. $R \to$ min, то $\sin\angle M \to$ max

$$\frac{1-\left(\frac{74-x^2}{70}\right)^2}{x^2} \to \text{max min}$$ 12 Чистовик.

$x^2 = t$, $t \geq 0$ $t > 0$

$$\frac{1-\left(\frac{74-t}{70}\right)^2}{t} \to \text{min}$$

$$\frac{1-\left(\frac{74-t}{70}\right)^2}{t} = \frac{70^2-(74-t)^2}{70^2 t} = \frac{(70-74+t)(70+74-t)}{70^2 t} = \frac{(t-4)(144-t)}{70^2 t}$$

$$\frac{(t-4)(144-t)}{t} \to \text{min} \quad 144 \geq t \geq 4$$

$$\frac{144t - t^2 + 4t - 4\cdot 144}{t} = 144 - t + 4 - \frac{4\cdot 144}{t} = 148 - t - \frac{4\cdot 144}{t}$$

$$\left(148 - t - \frac{4\cdot 144}{t}\right)' = -t + \frac{4\cdot 144}{t^2} = 0$$

$$148 - 4 - \frac{4\cdot 144}{4} = 148 - 4 - 144 = 0$$

$$148 - 144 - \frac{4\cdot 144}{144} = 0$$

$t^2 = 4\cdot 144$ — max.

~~$t^2 = 2\cdot 12$~~

~~$x^2 = 24$~~

~~$CD^2 = 24$~~

~~$CD = \sqrt{24} = 2\sqrt{6}$~~

~~Ответ: $2\sqrt{6}$~~

$t = 4$ или 144

$x^2 = 4; 144$

$x = 2; 12$

$CD = 2; 12$

Ответ: 2; 12

Часть 2

Олимпиада: **Математика, 11 класс (2 часть)**

Шифр: **21101207**

ID профиля: **297322**

Вариант 22

Чистовик, математика 11кл

4.

$\text{НОД}(a,b,c) = 14$

$\text{НОК}(a,b,c) = 2^{17}\cdot 7^{18}$

$a = 14x,\ b = 14y,\ c = 14z.$

$\text{НОД}(x,y,z) = 1.$

$xyz = 2^{16}\cdot 7^{17}$

$(2^m 7^n, 2^k 7^l, 1)$

$(2^m, 2^n, 7^l)$

$(2^m, 2^n, 7^l)$

$(2^m 7^n, 2^k, 7^l)$

1) $(2^m 7^n, 2^k 7^l, 1)$

$m+k = 16$

$n+l = 17$

$m = 0,1,2 \ldots 16$

$n = 0,1,2 \ldots 17$

$17\cdot 18\cdot 3$

2) $(2^m, 7^n, 7^l)$

$m = 16$

$l = 0,1,2,3 \ldots 16$

$16\cdot 3$

4) $(2^m 7^n, 2^k, 7^l)$

$m+k = 16$

$m = 1,2,3 \ldots 15$

$l = 1,2,3 \ldots 16$

$16\cdot 17\cdot 3$

3) $(2^m, 2^k, 7^l)$

$l = 17$

$m = 1,2,3 \ldots 15$

3691

3

11073

$16(16+1) =$

$= 256+16 = 272$

271

13

813

271

3523

3523

68

3591

Надо найти такие $x,y,z \in N$, что $\text{НОД}(x,y,z) = 1$, $\text{НОК}(x,y,z) = 2^{16}\cdot 7^{17}$

Это возможно, когда x,y,z содержат:

$(2\cdot 7, 2\cdot 7, 1)$

$(2,7,7)$ $(2,7,1)$

$(2,2,7)$

$(2\cdot 7, 1, 1)$

$(2\cdot 7, 2\cdot 7, 2\cdot 7)$

$3\big(4(16\cdot 17-1) + 2\cdot 17\cdot 2 + 2\cdot 16 + 1 + 1 + 9(16\cdot 17-1)\big) =$

$= 3\big(13(16\cdot 17-1) + 2\cdot 33 + 2\big) = 3\big(13(16\cdot 17-1) + 68\big)$

$= 3(13\cdot 271 + 68) = 11073$

Ответ: 11073

1) $(2\cdot 7, 2\cdot 7, 1)$

$x = 2^{16}\cdot 7^{17}$

$y = 2^a\cdot 7^b$

$a = 1,2,3 \ldots 16$

$b = 1,2,3 \ldots 17$

$16\cdot 17$

$(4\cdot 16\cdot 17 - 4)\cdot 3$

$x = 2^{16}\cdot 7^a$

$y = 2^b\cdot 7^{17}$

$a = 1,2,3 \ldots 16$

$b = 1,2,3 \ldots 15$

$x = 2^a\cdot 7^{17}$

$y = 2^{16}\cdot 7^b$

$a = 1,2,3 \ldots 16$

$b = 1,2,3 \ldots 16$

2) $(2^{16}, 7^a, 7^b)$

$a = 1,2,3 \ldots 16$

$2\cdot 17\cdot 3$

3) $(2,2,7)$

$2\cdot 16\cdot 3$

4) $(2^{16}\cdot 7^{17}, 1, 1)$

$1\cdot 3$

5) $(2,7,1)$

$(2^{16}, 7^{17}, 1)$

$1\cdot 3$

6) $(2\cdot 7, 2\cdot 7, 2\cdot 7)$

$(9\cdot 16\cdot 17 - 9)3$

Чистовик, Математика 11 кл.

№2.

$\frac{x}{2}+1 \neq 1$ $\quad \frac{7x}{2}-\frac{17}{4}>0$

$\frac{x}{2}+1 \neq -1$ $\quad \frac{7x}{2}-\frac{17}{4} \neq 1$

$\frac{3x}{2}-6>0$

$\frac{3x}{2}-6 \neq 1$

Пусть $\frac{x}{2}+1=a$, $\frac{7x}{2}-\frac{17}{4}=b$, $\frac{3x}{2}-6=c$

$\log_{a^2} b$, $\log_{\sqrt{b}} c^2$ $\log_{\sqrt{c}} a$ $\quad 3a-9=c$, $\quad 7a-\frac{45}{4}=b$

$a>0$, $b>0$, $c>0$

$a \neq \pm 1$, $b \neq 1$, $c \neq 1$

$\frac{\log_a b}{2}$ $\quad 4\log_b c$ $\quad 2\log_c a$

1) $\frac{\log_a b}{2} = 4\log_b c = 2\log_c a + 1$

$\begin{cases} \log_a b = 8\log_b c \\ \log_a b = 4\log_c a + 2 \end{cases}$

$\begin{cases} \log_a b = 8\frac{\log_a c}{\log_a b} \\ \log_a b = \frac{4\log_a a}{\log_a c} + 2 \end{cases}$

$\begin{cases} \log_a^2 b = 8\log_a c \\ \log_a b = \frac{4}{\log_a c} + 2 \end{cases}$

$\begin{cases} \log_a^2 b = 8\log_a c \\ \log_a c = \frac{4}{\log_a b - 2} \end{cases}$

$\log_a^2 b = \frac{32}{\log_a b - 2}$

$\log_a b = t$

$t^2 = \frac{32}{t-2}$

$t^3 - 2t^2 - 32 = 0$

$t=4$

$t^2+2t+8=0$

$t \in \varnothing$

$\log_a b = 4$

$\log_b c = \frac{1}{2}$

$\log_c a = \frac{1}{2}$

$b = c^2$

$c = a^2$

$a^4 = b$

$3a-9=a^2$

$a^2-3a+9=0$

$a \in \varnothing$

2) $\frac{\log_a b}{2} = 2\log_c a = 4\log_b c + 1$

$\begin{cases} \log_a b = 4\log_c a \\ \log_a b = 8\log_b c + 2 \end{cases}$

$\begin{cases} \log_a b = \frac{4\log_a a}{\log_a c} \\ \log_a b = 8\frac{\log_a c}{\log_a b} + 2 \end{cases}$

$\begin{cases} \log_a b = \frac{4}{\log_a c} \\ \log_a b = \frac{8}{\log_a b} \cdot \frac{4}{\log_a b} + 2 \end{cases}$

$\log_a b = t$

$t = \frac{32}{t^2} + 2$

$t=4$

$t^3 - 2t^2 - 32 = 0$

$t^2+2t+8=0$

$t \in \varnothing$

$\log_a b = 4$

$a^2-3a+9=0$

$a \in \varnothing$

21101207 (U297322 M1300910)

Чистовик

№3

3) $4\log_b c = 2\log_c a = \frac{\log_a b}{2}+1$

$$\begin{cases} \log_c a = 2\log_b c \\ \log_a b = 4\log_c a - 2 \end{cases}$$

$$\begin{cases} \frac{1}{\log_a c} = \frac{2\log_a c}{\log_a b} \\ \log_a b = \frac{4}{\log_a c} - 2 \end{cases}$$

$$\begin{cases} \log_a b = 2\log_a^2 c \\ \log_a b = \frac{4}{\log_a c} - 2 \end{cases}$$

$\log_a c = t$

$2t^2 = \frac{4}{t} - 2$

$t = 1$

$2t^3 + 2t - 4 = 0$

$t^3 + t - 2 = 0$

$t^3 - 1 + t - 1 = 0$

$(t-1)(t^2+t+1) + t - 1 = 0$

$(t-1)(t^2+t+2) = 0$

$t^2 + t + 2 = 0$

$t \in \emptyset$

$t = 1.$

$\log_a c = 1$

$a = c$

$3a - 9 = a$

$2a = 9$

$a = 4{,}5$

$\frac{x}{2} + 1 = 4{,}5$

$x = 7$

Ответ: 7.

Черновик

$\frac{7x}{2} + 7 - y = \frac{7x}{2} - \frac{17}{4}$

$y = 7 + \frac{17}{4} = \frac{28+17}{4} = 11{,}75 \quad \frac{45}{4}$

$\log_a^{7a - \frac{45}{4}} = 8\log_{(7a-\frac{45}{4})}^{(3a-9)}$

$\log_a b = \log_b c^8$

$\log_a b = \frac{1}{\log_c b}$

$\log_a b \cdot \log_b b = 8$

$\log_a b = \frac{4}{\log_a c} + 2$

$\log_a b \log_a c = 4 + 2\log_a c$

$8\log_b c \log_a c = 4 + 2\log_a c$

$\frac{8\log_a c}{\log_c b} = 4 + 2\log_a c$

$8\log_a c = 4\log_c b + 2\log_c b \log_a c$

$8\log_a c = 4\log_c b + 2\log_a b$

$4\log_a c = 2\log_c b + \log_a b$

(2, 2·7, 1)
(7, 2·7, 1)
(2·7, 2·7, 1)
(2, 7, 1)

(2, 7, 7)
(7, 2, 7)
(7, 7, 2)

a b c 14
14
10 15 20
5

$a = 14x$ $b = 14y$ $c = 14z$
$\gcd(x, y, z) = 1$
$14xyz = 2^{17} \cdot 7^{18}$
$xyz = 2^{16} \cdot 7^{17}$
$x = 1$
$y = 2^8 \cdot 7^8$ 2^{16}
$z = 2^8 \cdot 7^9$ $2 \cdot 7^{17}$

$a = 14$
$b = 2^{17}$
$c = 2 \cdot 7^{18}$
$2^9 \cdot 7^{10}$

2·7
2·7
1

(2, 2, 7)
(2, 7, 2)
(7, 2, 2)

10 15 20
$\gcd = 5$
НОК = 60
$5^3 \cdot 60 = 10 \cdot 15 \cdot 20 =$ 300
3000
15·20·10

5·60

6·14

$\gcd(x; y; z) = 1$
$\text{НОК}(x, y, z) = 2^{16} \cdot 7^{17}$
$xyz = 2^{16} \cdot 7^{17}$

2·7
2·7
2·7
2·7 2·7
2 2·7
2 2

(a, b, c) = 14

2·14 3·14 14

$(1, 2^{16}, 7^{17})$

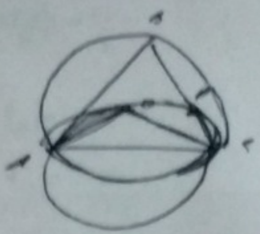
$(1, 2^{16}, 7^{17})$

$(1, 2^{15}\cdot 7, 7^{16}\cdot 2)$

$(1, 2\cdot 7^{16}, 7\cdot 2^{15})$

$xyz = 2^{16}\cdot 7^{17}$

$gcd(x,y,z)$



$(2\cdot 7, 2\cdot 7, 2\cdot 7)$

$(2\cdot 7, 2\cdot 7, 1)$

$(2, 7, 7)$

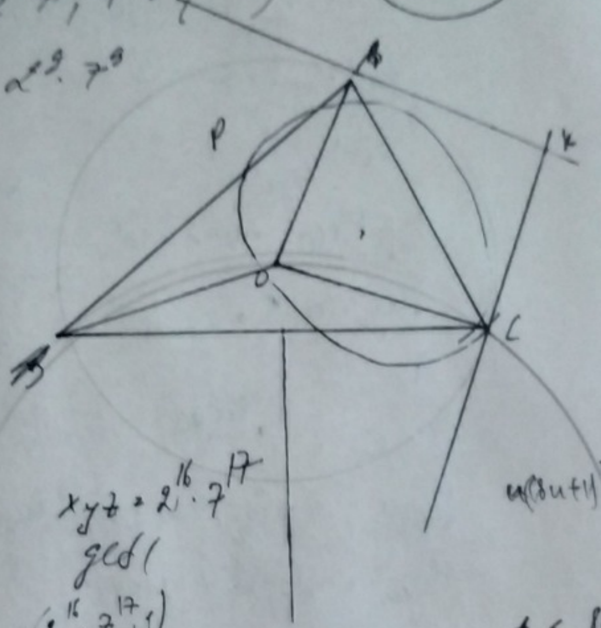
$(2, 2, 7)$

$(2\cdot 7, 7, 2)$

$(2\cdot 7, 1, 1, 2)$

$2^9\cdot 7^3,\ 7^9\cdot 2^3,\ 7^5\cdot 2^5$

$2^9\cdot 7^3$



$(2\cdot 7,\ 7,\ 2)$

$xyz = 2^{16}\cdot 7^{17}$

$gcd($

$(2^{16}, 7^{17}, 1)$

$2^6\cdot 7^7,$

$u(8u+1)^2 = 4$

$\frac{\log_a b}{2}\quad 4\log_b c\quad 2\log_c a$

$t = 8u+1$

$\log_{\left(\frac{7x}{2}-\frac{17}{4}\right)}\left(\frac{3x}{2}-6\right)^2 = \frac{1}{\ }$

$8u+1 = \frac{32}{(8u+1)^2}\quad t$

$4 = 2x^3 + x$

$2x^3 + x - 4 = 0$

$t = 4$

$x = 4$

$x = 2$

$u = \frac{4}{(8u+1)^2}$

$64 - 32 - 2$

$u = \frac{1}{2}$

$64 - 2\cdot 16 - 32 = 0$

$\frac{4}{x} = \frac{32x^2}{16} + 1$

$\log_{a^2} b = \log_{b^2} a$

t^3-

$\frac{4}{x} = 2x^2 + 1$

$(t^2 + 2t + a)(t - 4) = t^3 - 2t^2 - 32$

$t^3 + 2t^2 + at - 4t^2 - 8t - 4a$

$A = 36$

	1	−2	0	−32
−4	1	−6	24	

$a = 8$

$b = 4$

$t^3 - 2t^2 - 32 \,|\, t - 4$

$-t^3 - 4t^2 \qquad t^2 + 2t$

$2t^2 - 32$

$-2t^2 - 8t$

$3 \neq \sqrt{9 - 4\cdot 9}$

$b = 2$