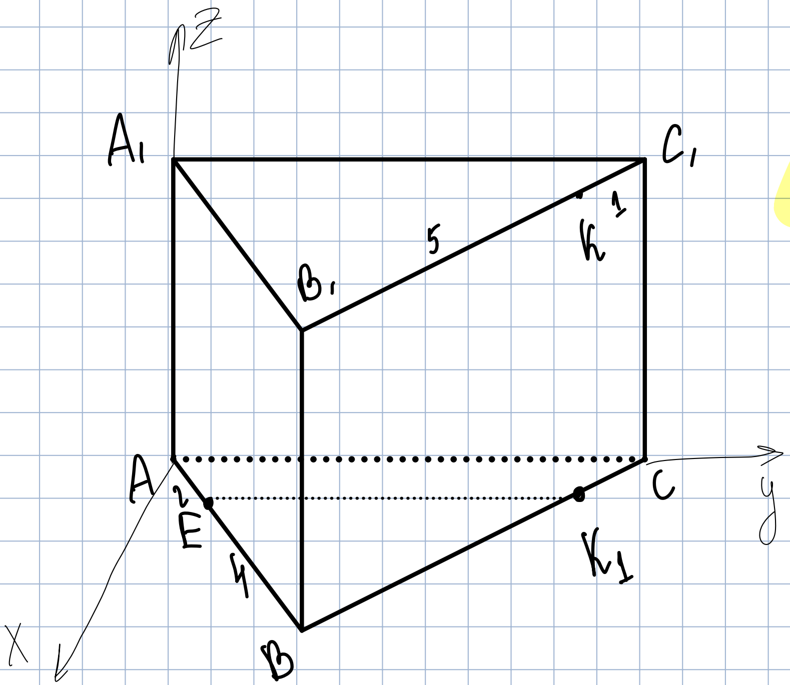
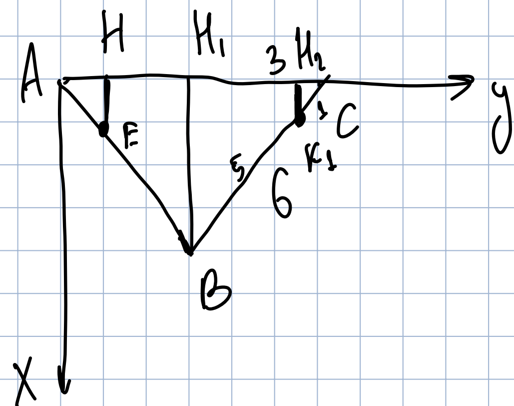
$EK - ?$



I способ: коорд

1) $E(\sqrt{3};\ 1;\ 0)$



$BH_1 = 3\sqrt{3}$

$EH = \sqrt{3}$

$AH = 1$

2) $K\left(\frac{\sqrt{3}}{2};\ \frac{1}{2};\ 2\right)$

$K_1H_2 = \frac{3\sqrt{3}}{6} = \frac{\sqrt{3}}{2}$

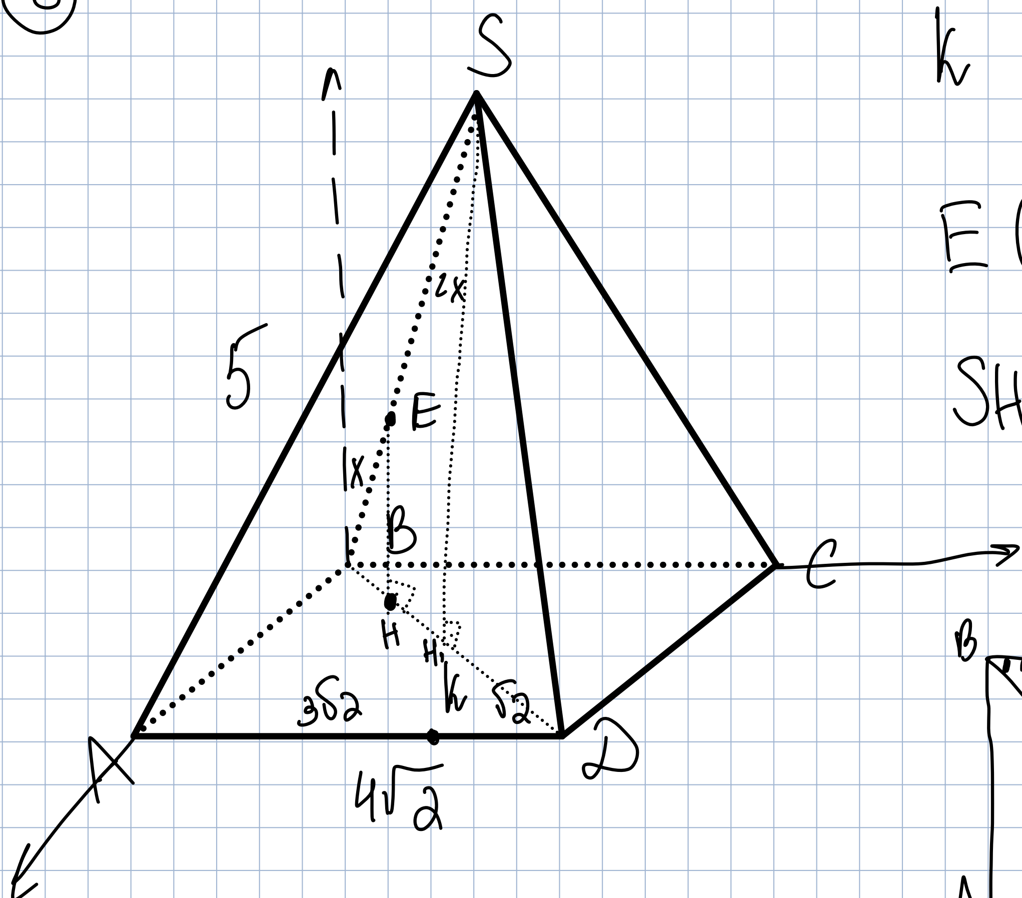
$6y = 3;\ y = \frac{1}{2} = CH_2$

$EK = \sqrt{\frac{3}{4} + \frac{81}{4} + \frac{16}{4}} =$

$= \frac{10}{2} = 5$

II способ:

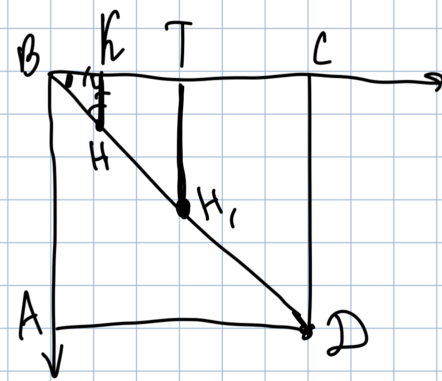
6



$K\ (4\sqrt{2};\ 3\sqrt{2};\ 0)$

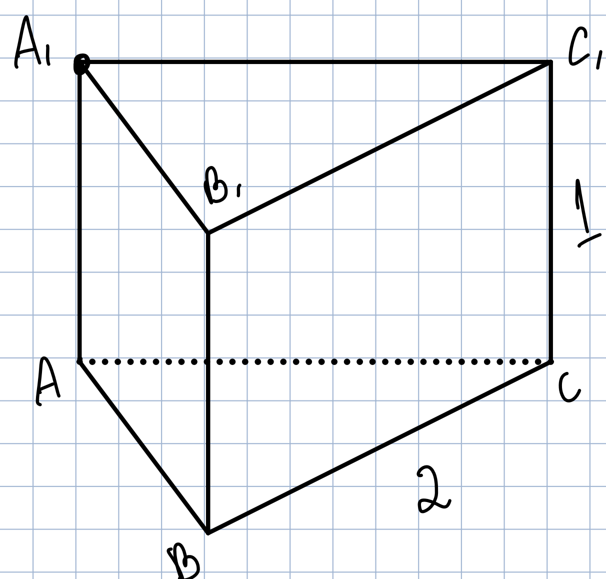
$E\left(\frac{2\sqrt{2}}{3};\ \frac{2\sqrt{2}}{3};\ 1\right)$

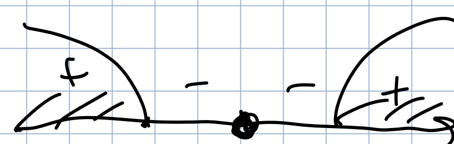
$SH_1 = \sqrt{25-16} = 3$



$\frac{1}{3}\cdot 2\sqrt{2} = \frac{2\sqrt{2}}{3}$

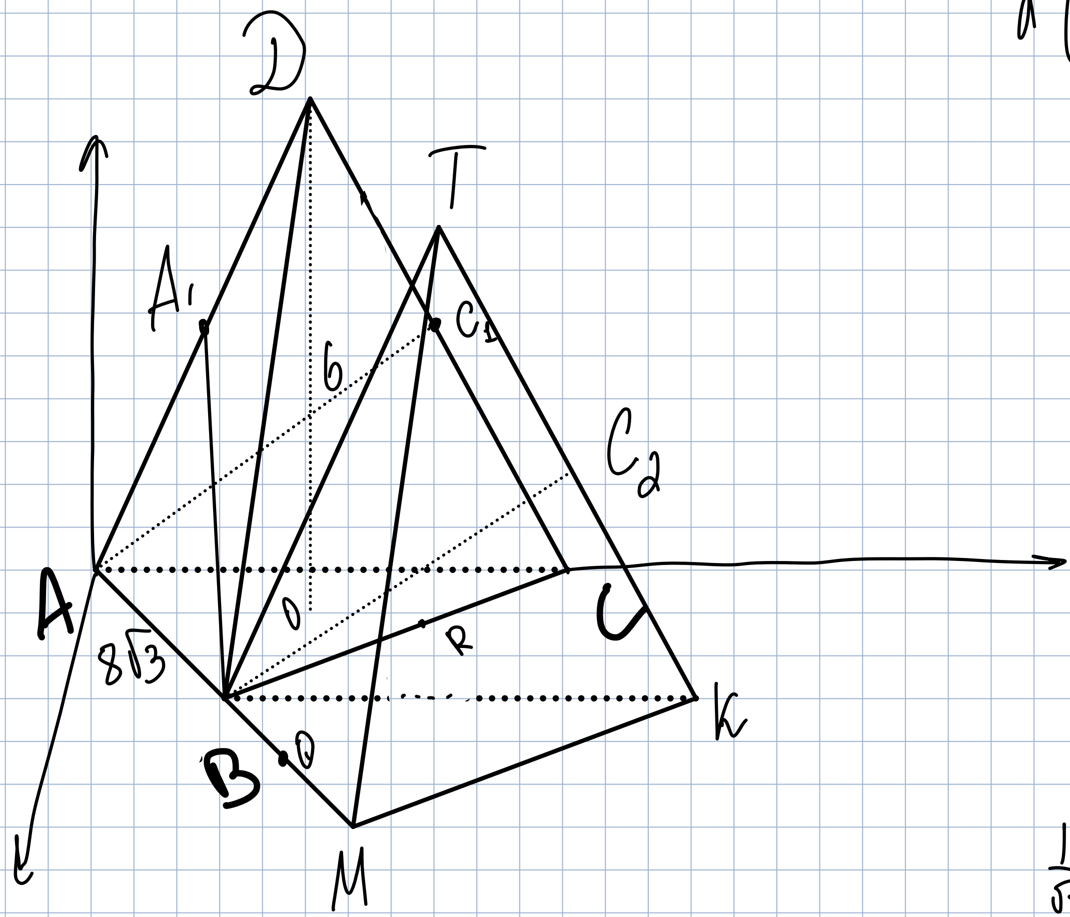
9





45

$d(\widehat{BA_1\ AC_1})$

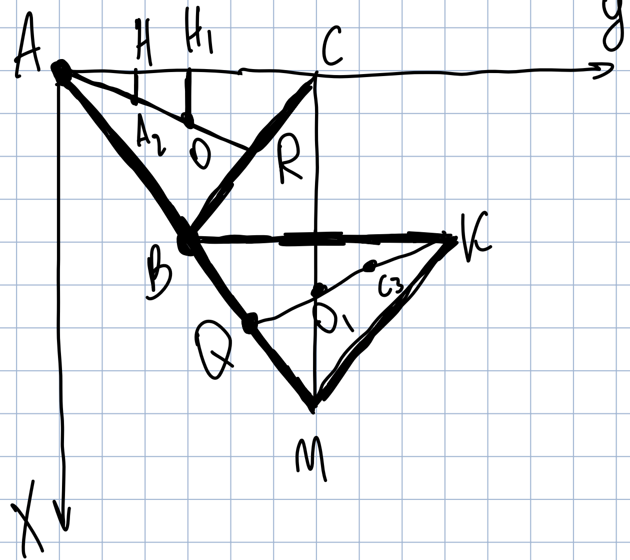


$\frac{1}{\sqrt{3}} = \frac{A_2H}{2\sqrt{3}}$

$A_2H = 2$

1) $AC_1 \parallel BC_2$

2) $d(\widehat{AC_1\ A_1B}) = d(A; A_1BC_2)$

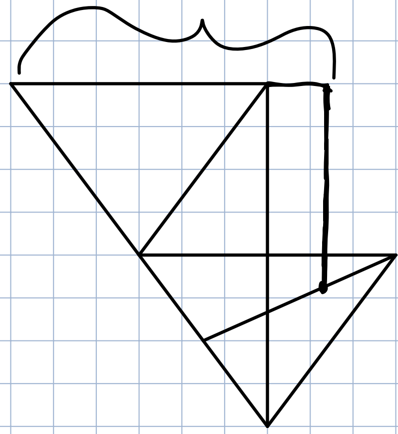


$A(0;0;0)$

$A_1(2;2\sqrt{3};3)$

$B(12;4\sqrt{3};0)$ ✓

$C_2(14;10\sqrt{3};3)$



$$\begin{cases} 12a + 4\sqrt{3}\,b + d = 0 \\ 2a + 2\sqrt{3}\,b + 3c + d = 0 \\ 14a + 10\sqrt{3}\,b + 3c + d = 0 \end{cases}$$

$$12a + 8\sqrt{3}\,b = 0$$

$$a = -\frac{8\sqrt{3}\,b}{12} = \frac{-2\sqrt{3}\,b}{3}$$

$$-8\sqrt{3}\,b + 4\sqrt{3}\,b + d = 0$$

$$b = \frac{d}{4\sqrt{3}} = \frac{1}{4\sqrt{3}}\,d$$

$$a = -\frac{2\cancel{\sqrt{3}}}{3} \cdot \frac{1}{4\cancel{\sqrt{3}}}\,d = -\frac{1}{6}\,d$$

$$-\frac{1}{3}d + \frac{1}{2}d + 3c + d = 0$$

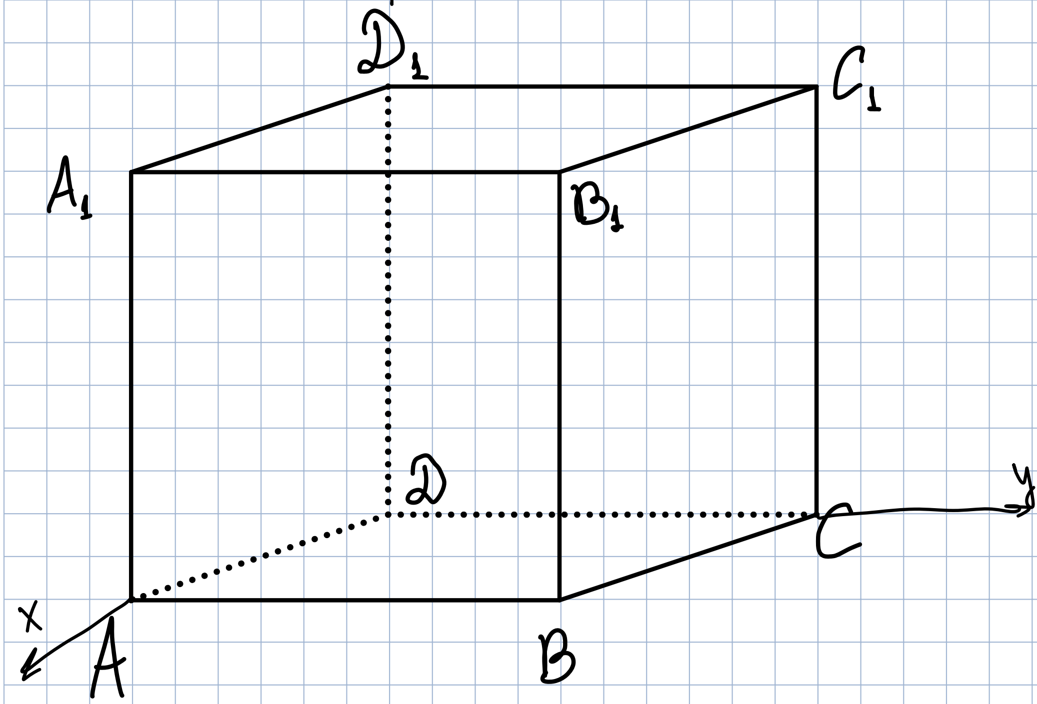
$$3c = -\frac{7}{6}d$$

$$c = -\frac{7}{18}\,d$$

$$S = \frac{1}{\sqrt{\frac{1}{48} + \frac{1}{36} + \frac{49}{18 \cdot 18}}} = \frac{27 + 36 + 196}{1296} =$$

$$= \frac{36}{\sqrt{259}} = \frac{36\sqrt{259}}{259}.$$

1) Прочти углы + по 3 задачи из каждой главы сборника (9 зад всего).



1) AB_1C_1

2) A_1B_1C

1) $A\ (1;0;0)$
$B_1\ (1;1;1)$
$C_1\ (0;1;1)$

$$\begin{cases} a+d=0 \\ a+b+c+d=0 \\ b+c+d=0 \end{cases}$$

$a=0,\ d=0$

$b+c=0$
$b+c=0$

Выразим через c

$b=-c.$

$a=0 \quad b=-1 \quad c=1 \quad d=0$

$\bar{n}\{0;-1;1\}$

$A_1\ (1;0;1)$
$B_1\ (1;1;1)$
$C\ (0;1;0)$

$$\begin{cases} a+c+d=0 \\ a+b+c+d=0 \\ b+d=0 \end{cases}$$

$b=0;\ d=0$

$a+c=0 \quad a=-c$

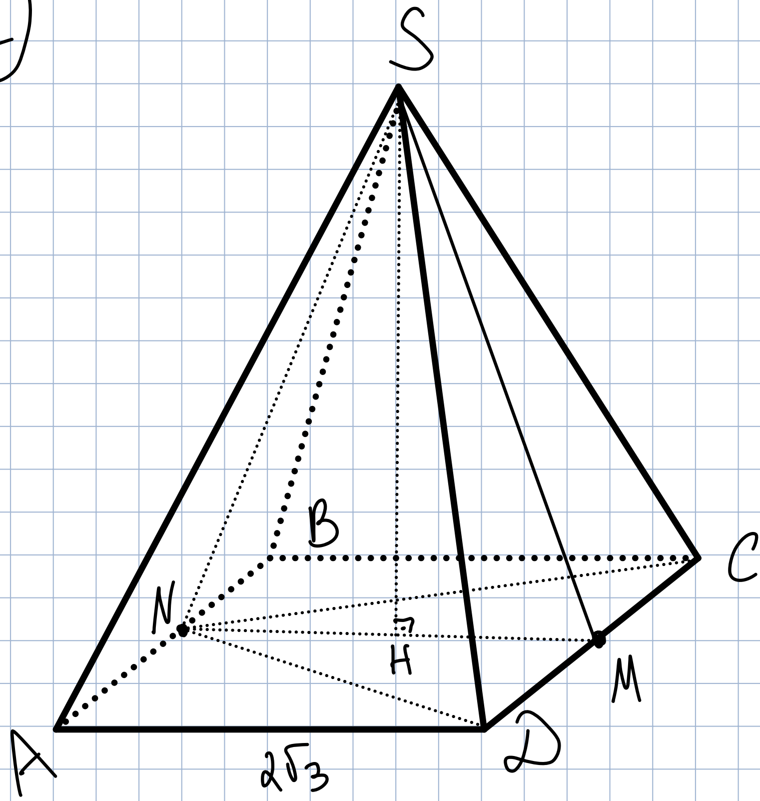
$a+c=0$

$\bar{m}\{-1;0;1\}$

$$\cos\alpha=\frac{1}{\sqrt{2}\cdot\sqrt{2}}=\frac{1}{2}$$

$\alpha=60^\circ.$

(1)



Дано:

SABCD - прав. чет. пир.

$AB = 2\sqrt{3}$

$SH = 3$

M и N - сер AB и CD

NT - высота в пир. NSCD

а) док, что T - сер. SM

б) $d(NT \hat{} SC)$

1) Проведём NM и SM

$NM \perp DC$, т.к. $NM \parallel AD$

$SM \perp DC$, т.к. SM - мед в р/б $\triangle SDC$.

$\Rightarrow CD \perp$ пл. SNM

2) Проведём высоту в $\triangle SNM$ из N на SM. Пусть эта высота h. $h \perp SM$ и $h \perp CD$ ($CD \perp h$) $\Rightarrow$

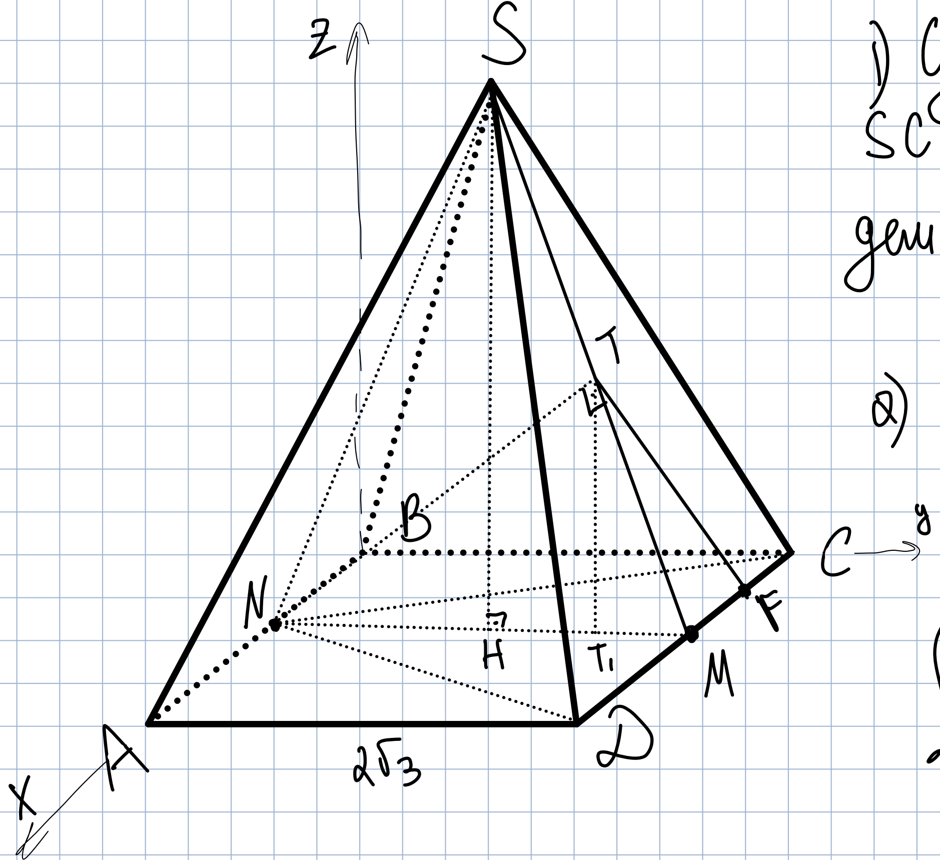
$\Rightarrow h \perp$ пл. SDC $\Rightarrow h = NT$, где h - высота в $\triangle NSM$.

Коротко говоря, высота из N на SM совпадет с высотой из N на пл. SCD. И чтобы доказать, что высота из N на пл. SCD упадет в сер. SM, докажем, что высота из N на SM упадёт в середину SM.

3) $SN = \sqrt{SH^2 + NH^2} = \sqrt{9+3} = 2\sqrt{3} = SM$

$\Rightarrow \Delta SNM$ – р/с $\Rightarrow$ высота из N на SCD (NT) (= высота из N на SM) упадёт на сер. SM.

б) $d(\widehat{NT\ SC})$ – расст. между скрещ. пр.



1) Сделаем ∥-ый перенос SC до пересеч. с NT. Проведем TF – ср. линию ΔSMC

$SC \longrightarrow TF$

2) $d(\widehat{NT\ SC}) = d(C; NTF)$

$C(0; 2\sqrt{3}; 0)$

$\begin{cases} N(\sqrt{3}; 0; 0) \\ T\left(\sqrt{3}; \frac{3\sqrt{3}}{2}; \frac{3}{2}\right) \\ F\left(\frac{\sqrt{3}}{2}; 2\sqrt{3}; 0\right) \end{cases}$

$NT_1 = \frac{3}{4} NM = \frac{3\sqrt{3}}{2}$

$\begin{cases} \sqrt{3}a + d = 0 \\ \sqrt{3}a + \frac{3\sqrt{3}}{2}b + \frac{3}{2}c + d = 0 \\ \frac{\sqrt{3}}{2}a + 2\sqrt{3}b + d = 0 \end{cases}$

1) $a = -\frac{d}{\sqrt{3}} = -\frac{1}{\sqrt{3}}$

2) $\frac{\sqrt{3}}{2} \cdot \left(-\frac{d}{\sqrt{3}}\right) + 2\sqrt{3}b + d = 0 \quad b = -\frac{d}{4\sqrt{3}} = -\frac{1}{4\sqrt{3}}$

3) $\cancel{-d} - \frac{3\cancel{\sqrt{3}}}{2} \cdot \frac{d}{4\cancel{\sqrt{3}}} + \frac{3}{2}c \cancel{+d} = 0$

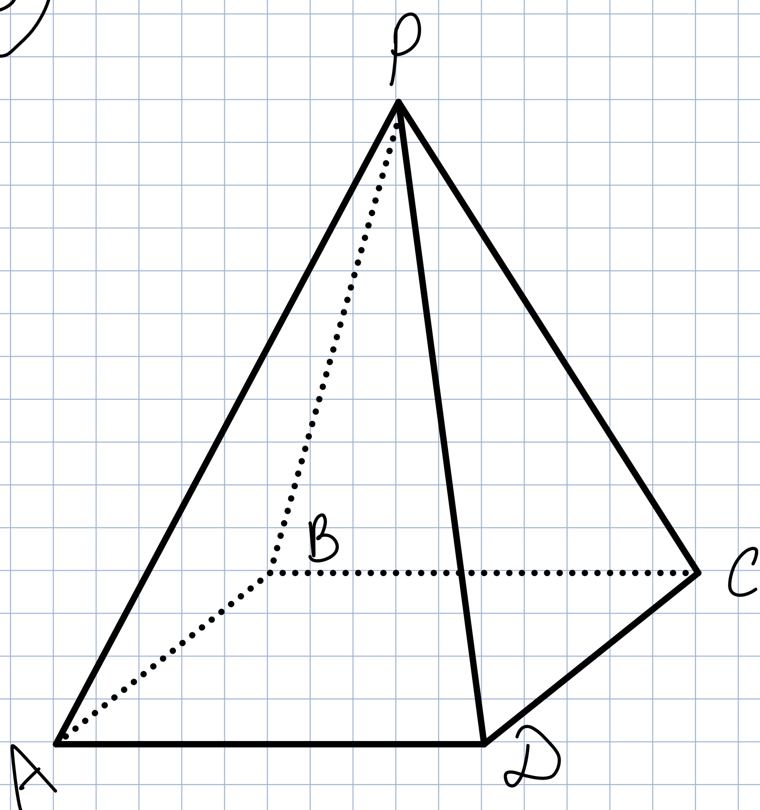
$-\frac{3d}{8} + \frac{3}{2}c = 0$

$c = \frac{3d}{8} \cdot \frac{2}{3} = \frac{d}{4} = \frac{1}{4}$

$$d(NT; SC) = \frac{\left|-\frac{1}{2}\right|}{\sqrt{\frac{1}{3}+\frac{1}{48}+\frac{1}{16}}} = \frac{\frac{1}{2}}{\sqrt{\frac{20}{48}}} = \frac{1}{2} : \frac{\sqrt{5}}{2\sqrt{3}} =$$

$$= \frac{\sqrt{3}}{\sqrt{5}} = \frac{\sqrt{15}}{5}$$

3



Дано:

$PABCD$ - пр. чет. пир.

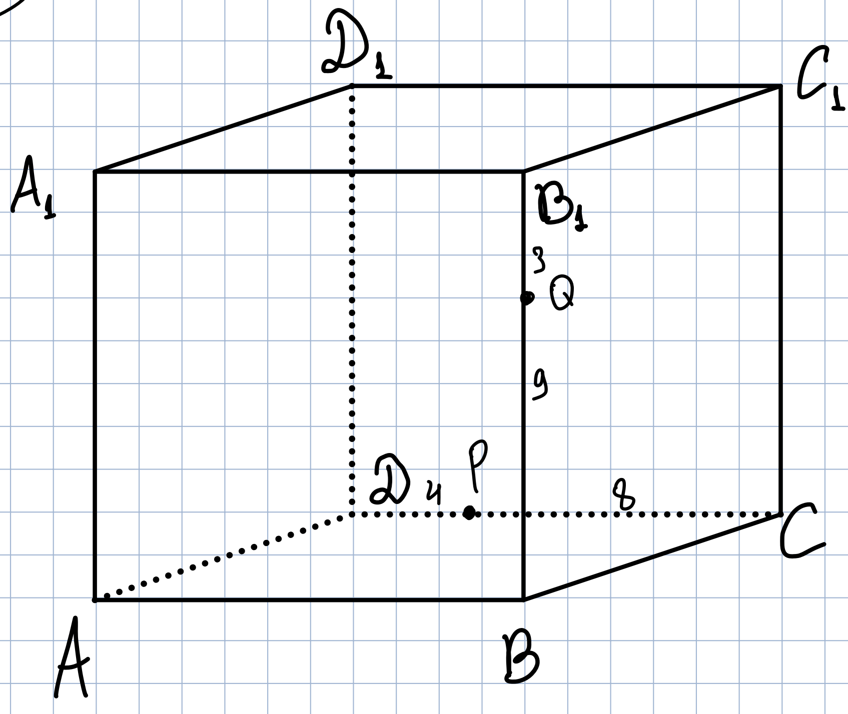
$AB = 12$; $AP = 12\sqrt{2}$

$A \in \alpha$; $\alpha \perp PC$; $\alpha \cap PC = K$

а) док, что $\alpha \cap PH = 2:1$ от P.

б) $d(\widehat{PH; BK})$

7



Дано: Куб, ребра $= 12$

пл. $APQ \cap CC_1 = M$

а) док, что M — сер. CC_1

б) $d(C \,\hat{}\, APQ)$

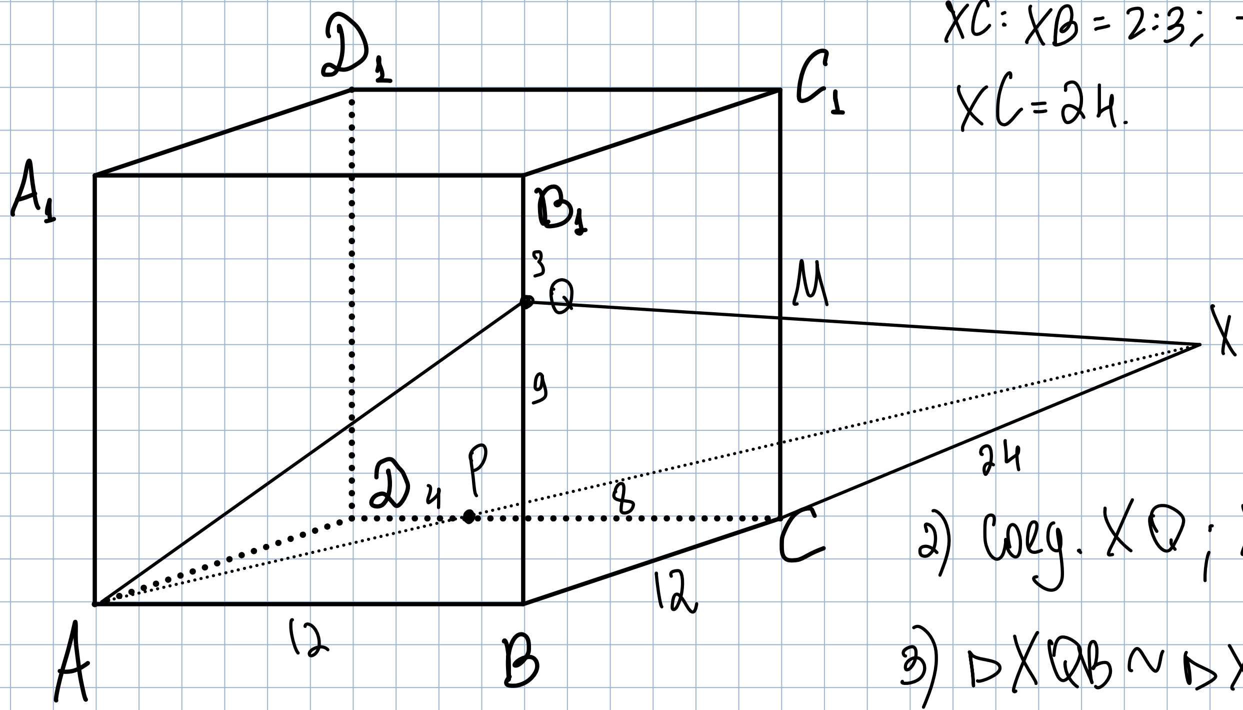
Чтобы решить п. а нужно построить сеч. через $A; P; Q$.

1) $AP \cap BC = X$;

$\triangle XPC \sim \triangle XAB = \frac{8}{12} = \frac{2}{3}$

$XC : XB = 2:3$; $\frac{XC}{XC+12} = \frac{2}{3}$

$XC = 24$.



2) Соед. XQ; $XQ \cap CC_1 = M$.

3) $\triangle XQB \sim \triangle XMC$

$$\frac{XC}{XB} = \frac{MC}{BQ}$$

$$\frac{24}{36} = \frac{MC}{9}$$

$$MC = \frac{24 \cdot 9}{36} = 6. \Rightarrow M\text{-сер.}$$

1) 14.1 № 3; 20
2) 14.2 № 20, 18, 17, 16
3) 14.3. 1-10
4) учебник стр 179 1-12. п. в тетр.

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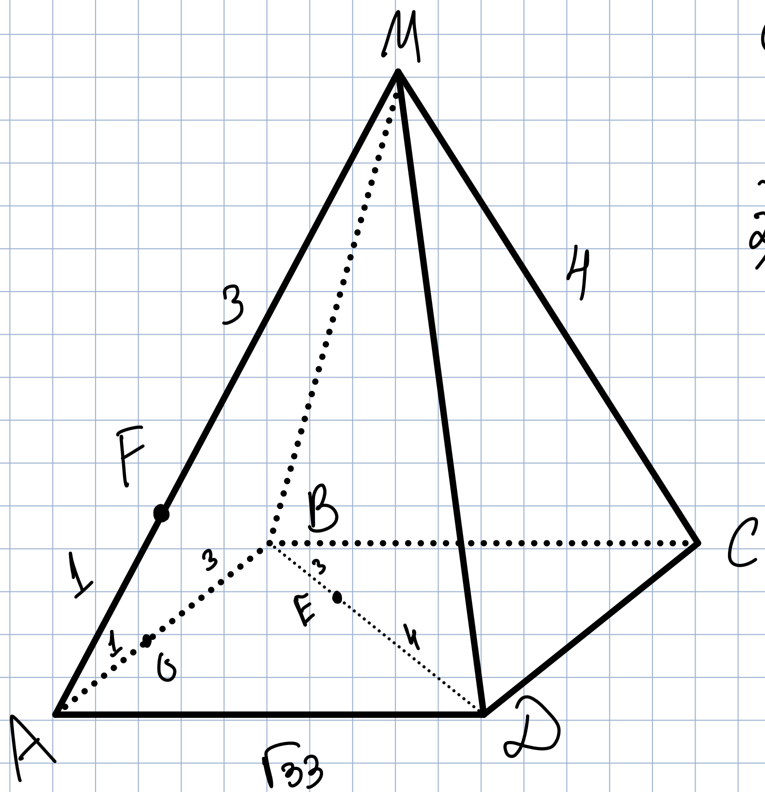
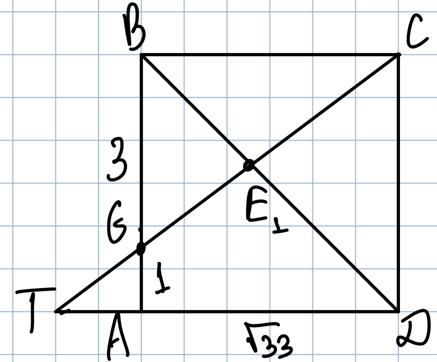


док, что пл. GEF прох через т.C.

1) достаточно док, что $C \in GE$

2) докажем, что CG проходит через E, т.е. $CG \cap BD = E_1$, где $BE_1 : E_1D = 3 : 4$

3) $CG \cap AD = T$



$$AT = \frac{1}{3} BC = \frac{\sqrt{33}}{3}$$

4) $\triangle BEC \sim \triangle TED$

$$k = BC : TD = \sqrt{33} : \frac{4\sqrt{33}}{3} = 3:4$$

$\Rightarrow BE_1 : E_1D = 3 : 4$

$\Rightarrow$ E и E_1 – совп.

$\Rightarrow GC \cap BD = E_1 = E$

$\Rightarrow$ прямые GE_1 (GE) и GC – совп.

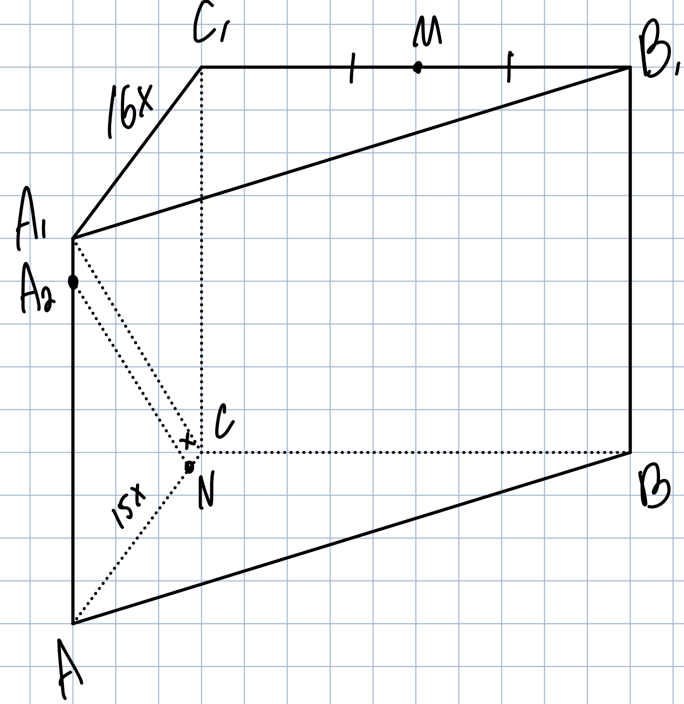
$\Rightarrow C \in GE$.

Задание 4

Дано: прямая призма; в $\triangle ABC$ $\angle C = 90°$
M - сер. B_1C_1; $AN : NC = 15:1$; $AC = 4AA_1$.

— док, что $MN \perp CA_1$

сдвинем $CA_1 \to NA_2$ (до пересеч с NM); $\angle A_2NM$ - иск.



1) $$\frac{AA_2}{A_2A_1} = \frac{15}{1}$$

$$\frac{AA_2}{AA_1} = \frac{15}{16}; \quad \frac{AA_2}{4x} = \frac{15}{16}$$

$$AA_2 = \frac{60x}{16} = \frac{15x}{4}; \Rightarrow A_1A_2 = \frac{x}{4}$$

2) Пусть $BC = y$

1) $A_2N = \frac{15\sqrt{17}}{4}x$

2) $NM = \sqrt{16x^2 + \frac{y^2}{4} + x^2}$ - в $\triangle NCM$

3) $A_2M = \sqrt{256x^2 + \frac{y^2}{4} + \frac{x^2}{16}}$ - в $\triangle A_2A_1M$

4) Применим теор. обр. теор. Пиф в $\triangle A_2NM$

$$256x^2 + \cancel{\frac{y^2}{4}} + \frac{x^2}{16} = \frac{225 \cdot 17}{16}x^2 + 16x^2 + \cancel{\frac{y^2}{4}} + x^2 \quad \Big| \cdot 16$$

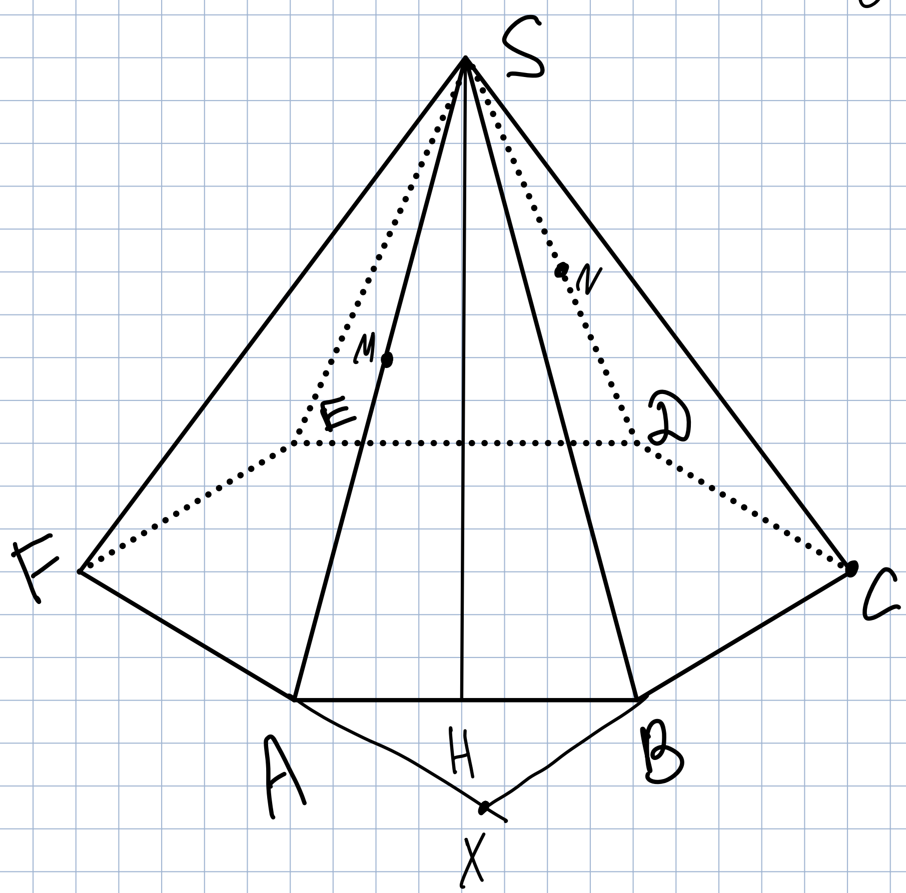
$$256 \cdot 16x^2 + x^2 = 225 \cdot 17 \cdot x^2 + 17x^2 \cdot 16$$

$$4097x^2 = 3825x^2 + 272x^2$$

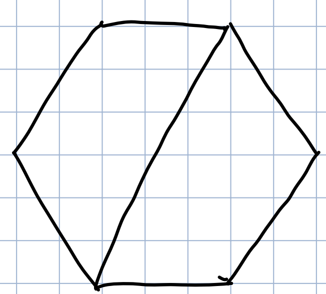
$$4097x^2 = 4097x^2$$

$\Rightarrow \triangle A_2NM$ - прямоуг $\Rightarrow \angle A_2NM = 90° = \angle(\widehat{MN\ CA_1})$

док, что пл. $MNC \cap SH =$
$= K$, где $SK : KH = 2:1$



1) $\alpha \parallel AD$ 2) $\alpha \cap ABC = C \Rightarrow \alpha \cap ABC = a \; (C \in a)$
$\Rightarrow a \parallel AD$; $a = BC$



3) $\alpha \cap ASB = MB$, где MB - мед.

Д.З. 13.3 – доделать 1-10

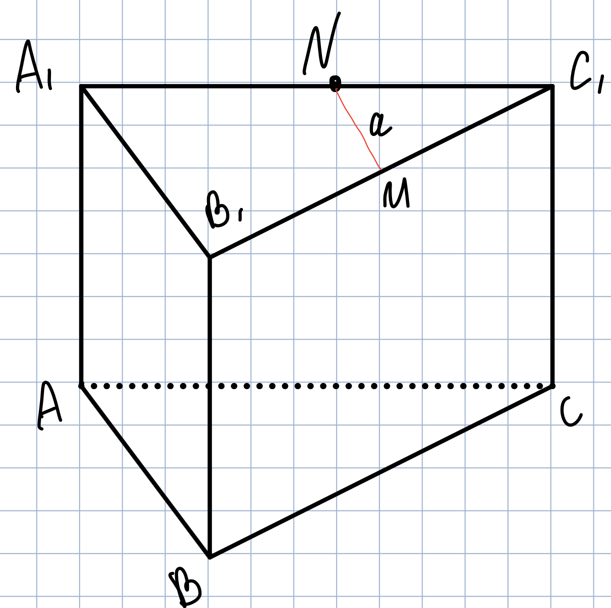
13.4 – 1, 3, 7, 11, 15, 20, 27

13.5. 6, 12, 17

13.6. 5, 10

Сайт. Мат-ЕГЭ № 15; 12.

(1.)



1) Пусть пл. BAN = пл α

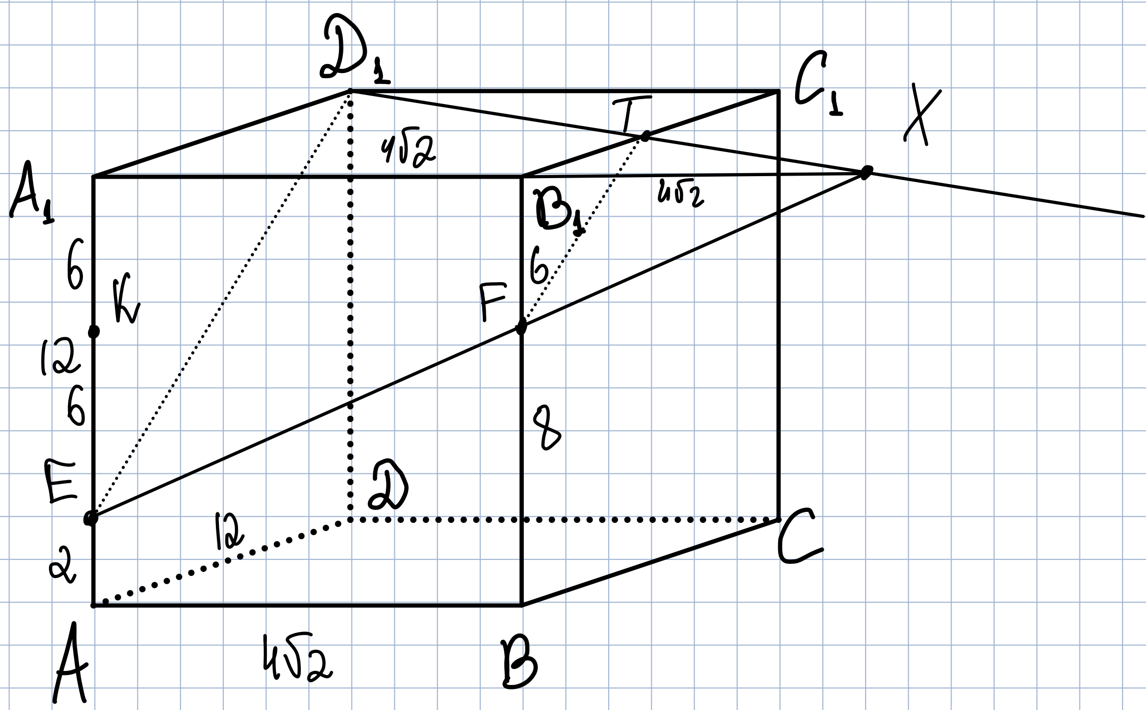
2) $A_1B_1 \parallel AB \Rightarrow A_1B_1 \parallel \alpha$

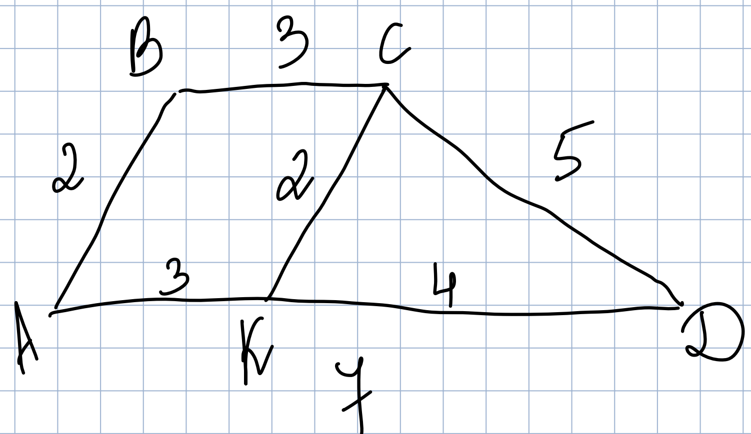
3) $\alpha \cap$ пл. $A_1B_1C_1 = N \Rightarrow \alpha \cap$ пл. $A_1B_1C_1 = a$ $(N \in a)$

4) $a \parallel A_1B_1$, т.к. $A_1B_1 \parallel \alpha$

5) Пусть M - сер. B_1C_1 $\Rightarrow NM = a$

пл. ETD,





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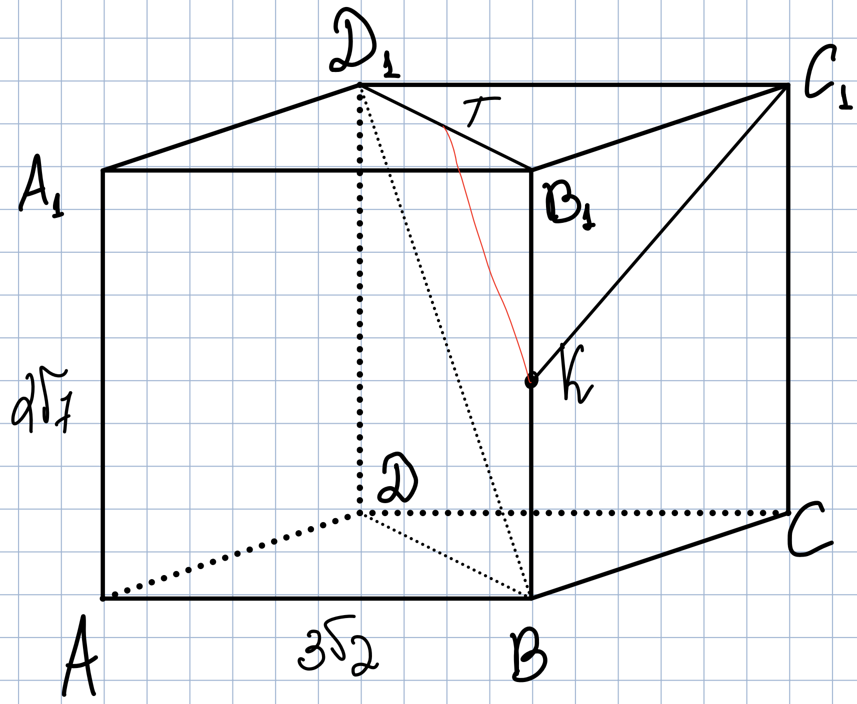


1) рассм. пл. BDD_1B_1

2) $\alpha \cap BDD_1B_1 = K \Rightarrow \alpha \cap BDD_1B_1 = a \ (K \in a)$

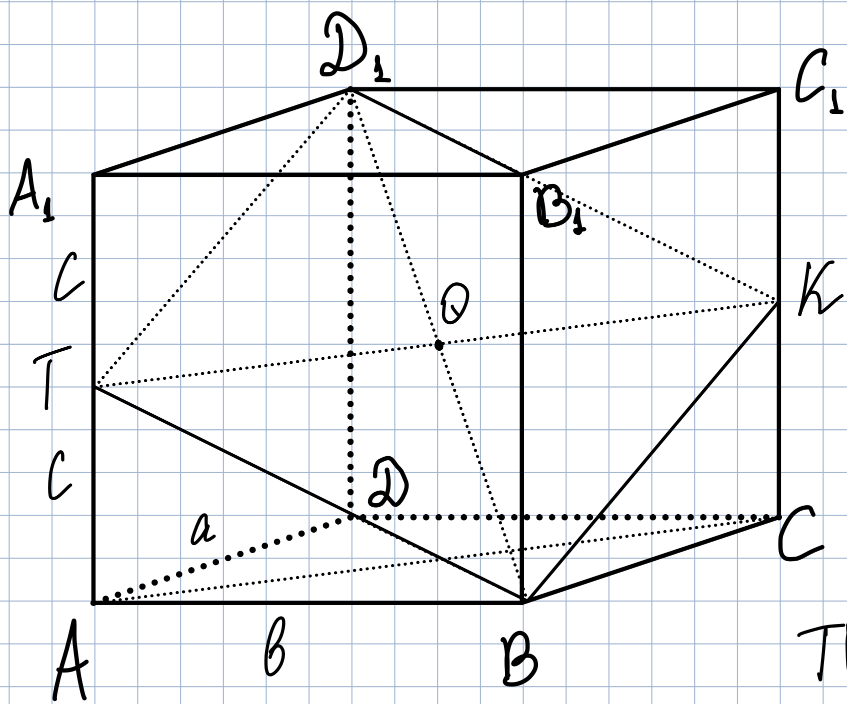
3) $a \parallel BD_1$ (т.к. $BD_1 \parallel \alpha$) $\Rightarrow a$ – ср. линия $\triangle BD_1B_1$

4) Пусть T – сер. $B_1D_1 \Rightarrow KT \parallel BD \Rightarrow KT = a$

5) Соед. C_1T ; $A_1 \in C_1T$

6) пл. α = пл. C_1KA_1

⑮



$\alpha \parallel AC$

$BD_1 \in \alpha$

$TB^2 = c^2 + b^2$

$TD_1^2 = c^2 + a^2$

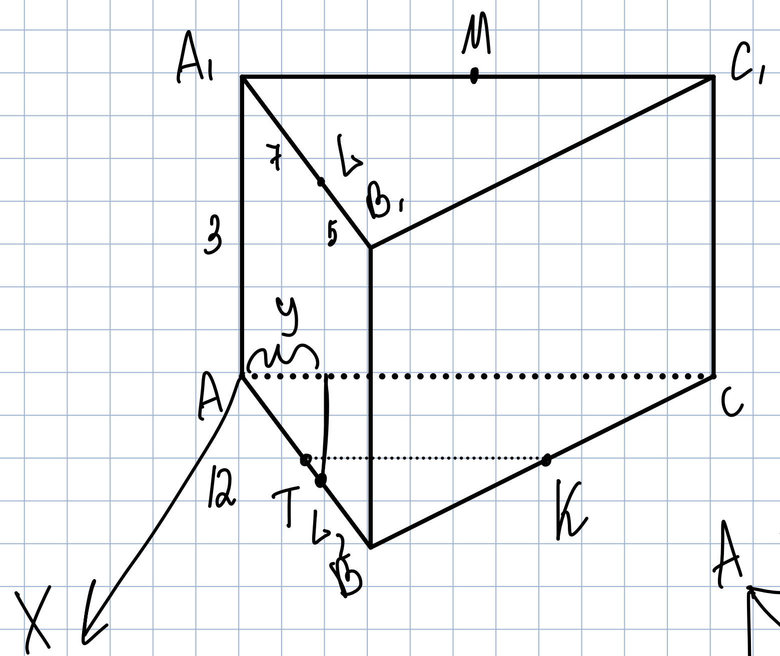
$\Rightarrow b^2 = a^2$

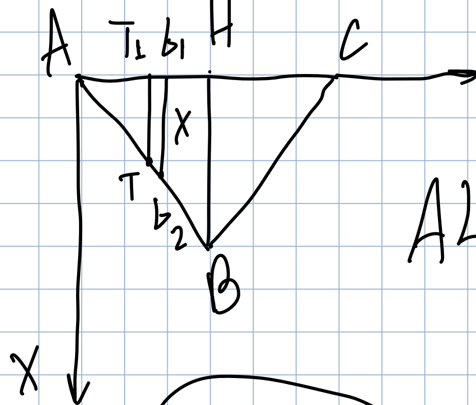
1) $\alpha \cap AA_1C_1C = Q$

$\Rightarrow \alpha \cap AA_1C_1C = a \ (Q \in a)$

2) $TK = a$

3)





$AL_1 - y$

$$\boxed{\frac{LL_1}{BH} = \frac{AL}{AB}}$$

$$\frac{LL_1}{12\sqrt{3}} = \frac{7}{12}$$

$7\sqrt{3}$

Черёпка

a в c

$\bar{n}\{x_2; y_2; z_2\}$

$\overline{MB}$

BM

$B(12\sqrt{3}; 6; 0)$

$M(0; 6; 3)$

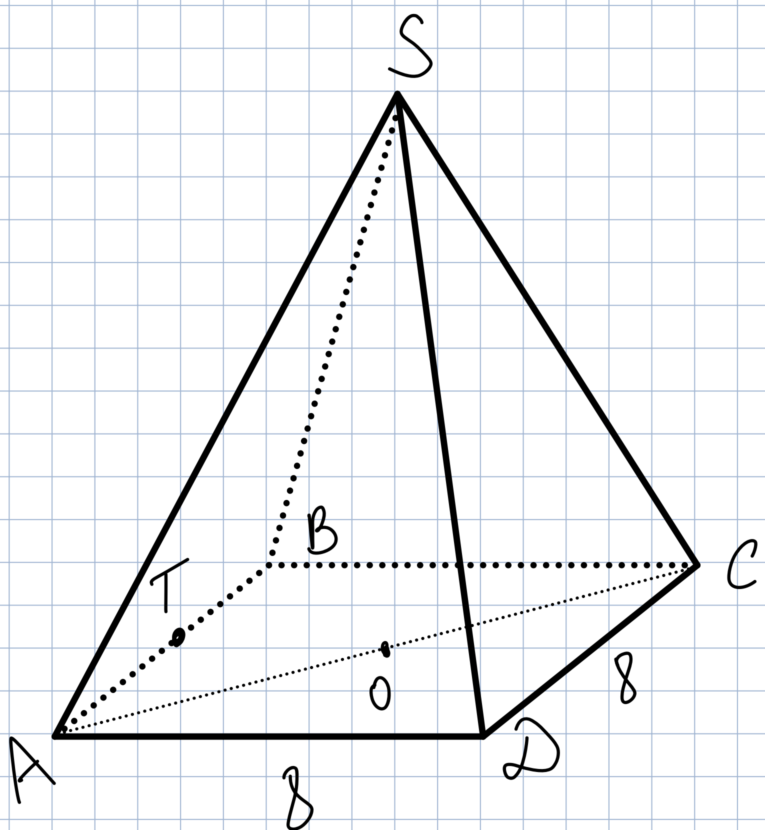
$\vec{MB}\{12\sqrt{3}; 0; -3\}$

$L(7\sqrt{3}; 3{,}5; 3)$

$T(\overset{6}{3}\sqrt{3}; 3; 0)$

$K(6\sqrt{3}; 9; 0)$

(10)



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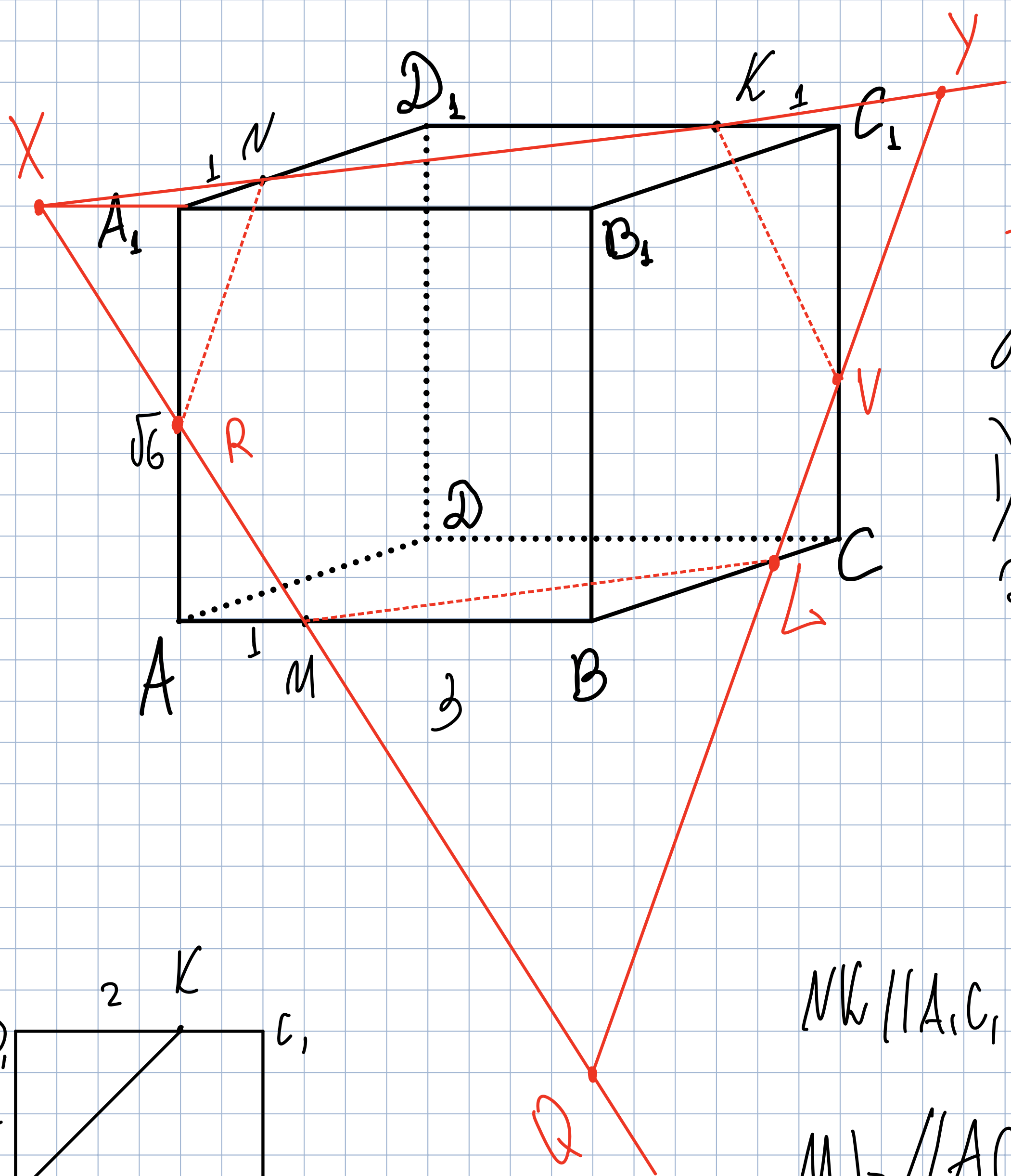
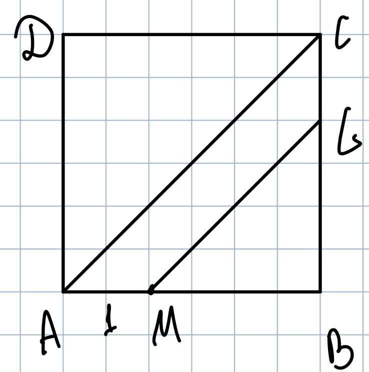


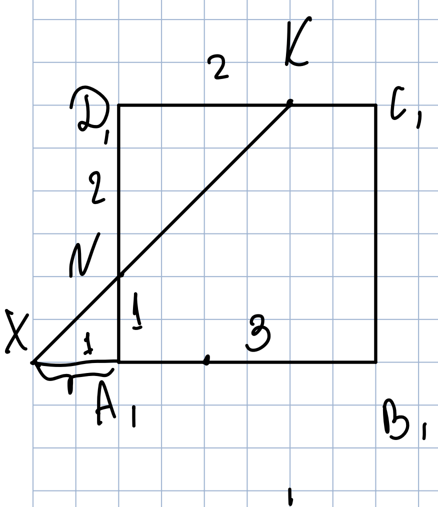
$NK \cap A_1B_1 = X$

NK

док, что $MNKL$ - кв-ат

1) $NK \parallel ML$





$NK \parallel A_1C_1 \parallel AC \parallel ML$

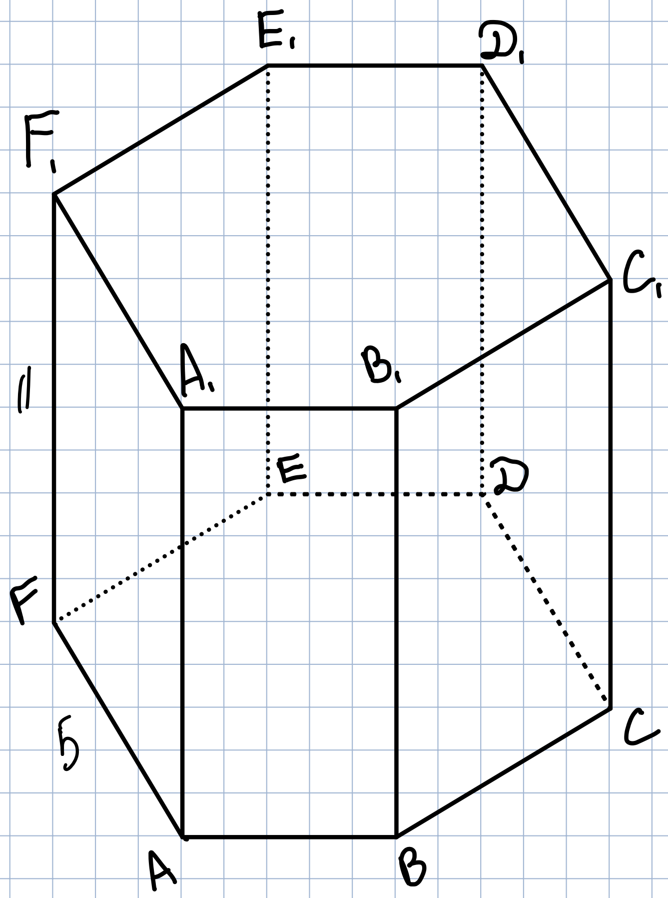
$ML \parallel AC$

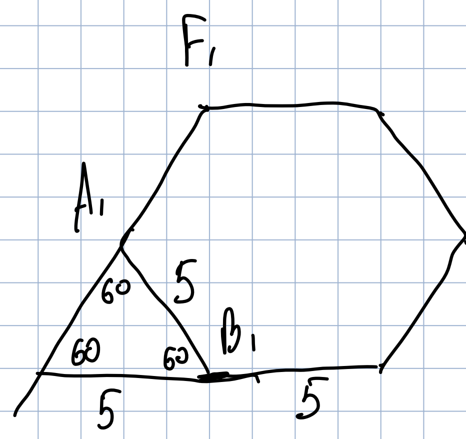
$\triangle BML \sim \triangle BAC$

$k = \frac{BM}{AB} = \frac{BL}{BC}$; $\frac{2}{3} = \frac{BL}{3}$

$BL = 2.$

15





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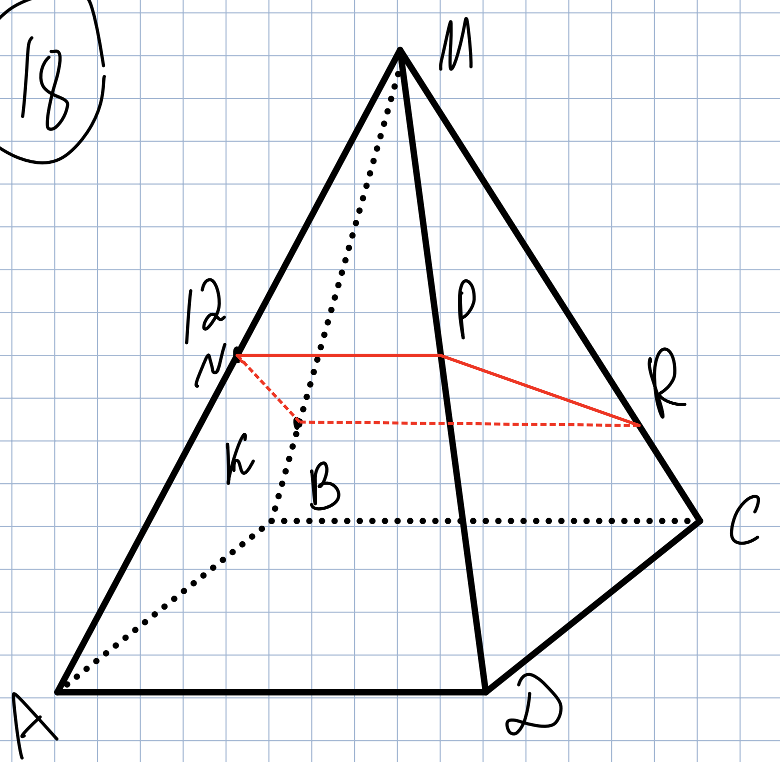
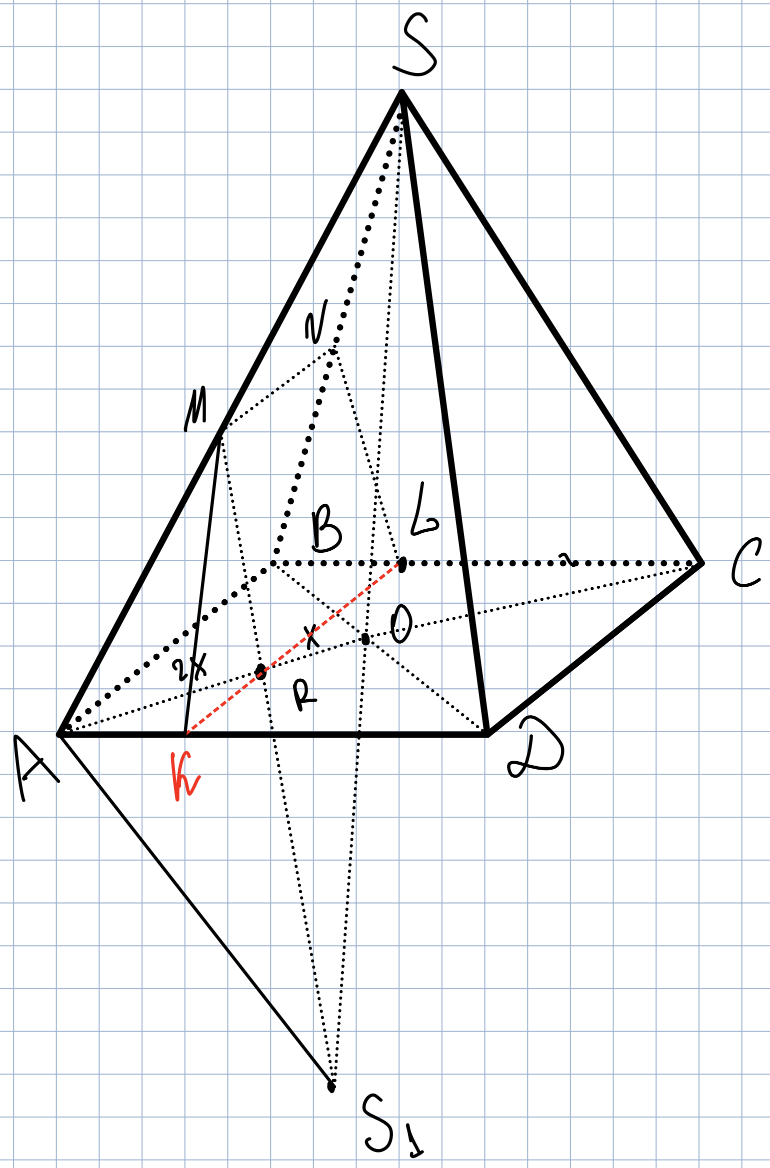
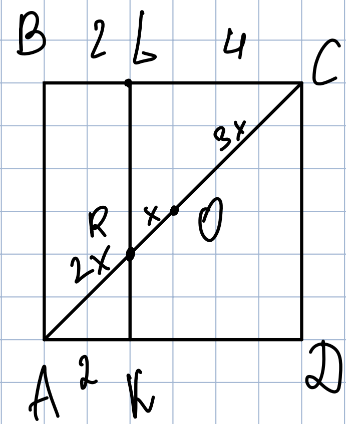


11





15 мин доп!

ДЗ. ссылка ш.4 N 1, 3, 4, 5, 6, 8, 12, 13, 38, 41, 51, 52, 53, 54, 56, 59, 103, 104, 120, 153, 169.

8) 1) $x = \frac{3\pi}{4} + \pi n,$ $\left[-\frac{3\pi}{2}; 2\pi \right]$

2) $x = \arcsin\left(\frac{1}{3}\right) + \frac{\pi}{2} n$

1) $-\frac{3\pi}{2} \leq \frac{3\pi}{4} + \pi n \leq 2\pi \quad | : \pi$

$-\frac{3}{2} \leq \frac{3}{4} + n \leq 2 \quad | -\frac{3}{4}$

$-\frac{5}{2} \leq n \leq \frac{5}{4}$

$n = -2 \longrightarrow x = \frac{3\pi}{4} - 2\pi = -\frac{5\pi}{4}$

$n = -1 \longrightarrow x = \frac{3\pi}{4} - \pi = -\frac{\pi}{4}$

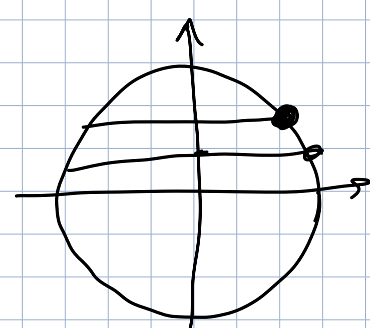
$n = 0 \longrightarrow$ $\frac{3\pi}{4}$

$n = 1 \longrightarrow$ $\frac{7\pi}{4}$

20°

2) $\arcsin \frac{1}{3} + \frac{\pi}{2} n$

$-270 \leq \underline{20^\circ + 90^\circ \cdot n} \leq 360 \quad |$



$\arcsin \frac{1}{2}$

$n = -3$

$n = -2$

$n = -1$

$n = 0$

$n = 1$

$n = 2$

$n = 3$

$$\frac{(x-1)^2}{8} + \frac{8}{(x-1)^2} = 7\left(\frac{x-1}{4} - \frac{2}{x-1}\right) - 1$$

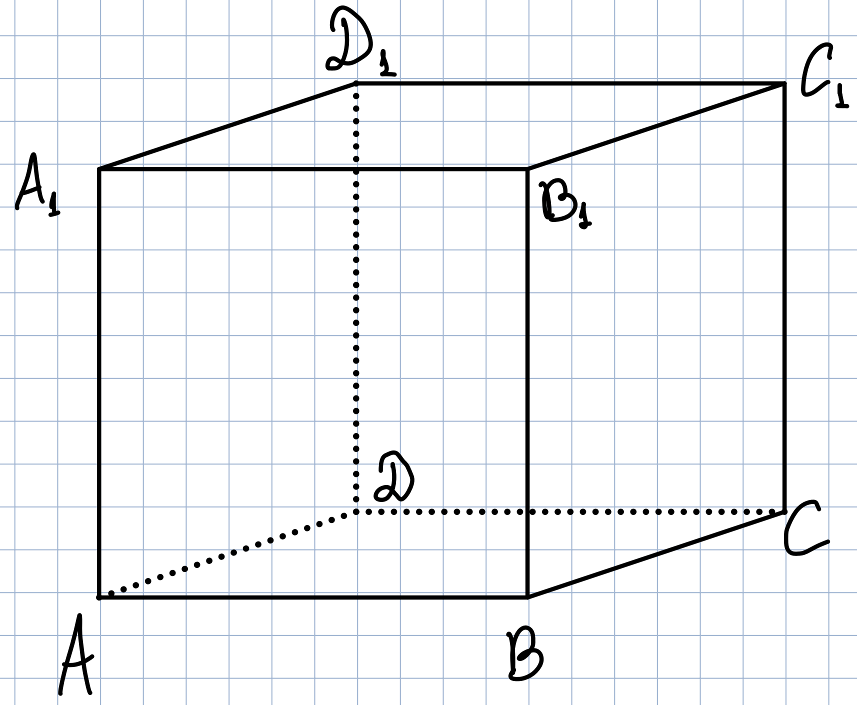
Пусть $\frac{x-1}{4} - \frac{2}{x-1} = t \quad \uparrow^2$

$$\frac{(x-1)^2}{16} - 1 + \frac{4}{(x-1)^2} = t^2$$

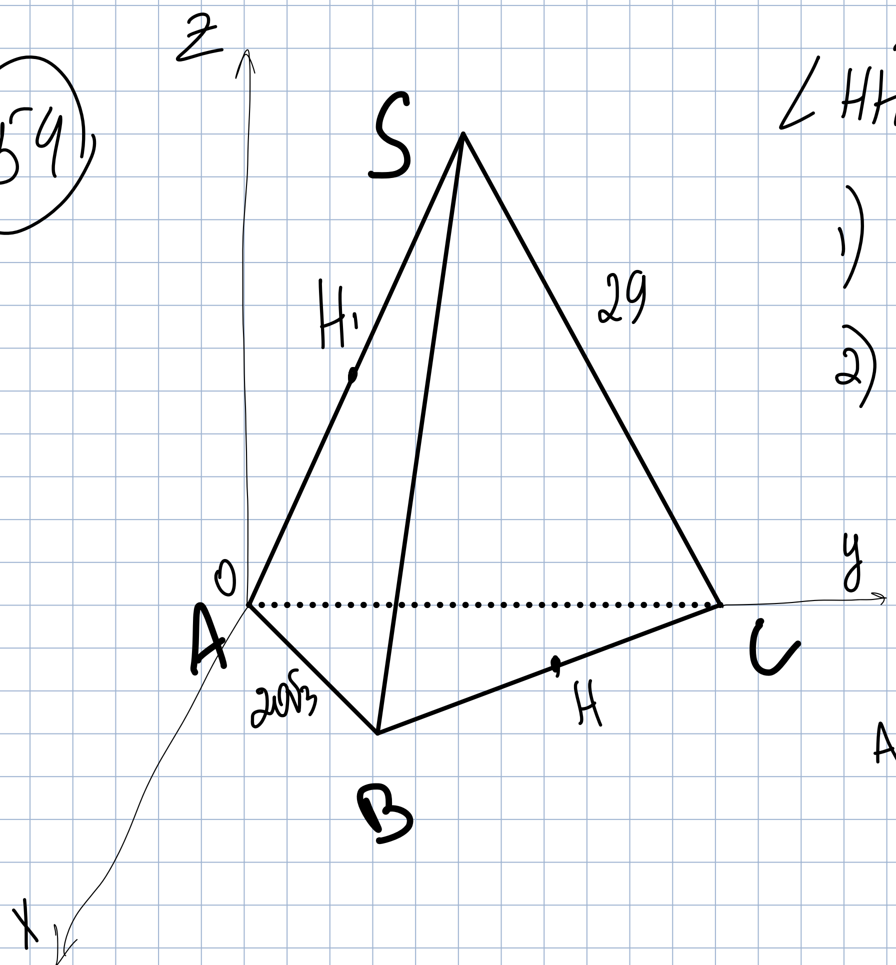
$$\frac{(x-1)^2}{16} + \frac{4}{(x-1)^2} = t^2 + 1 \quad \Big/ \cdot 2$$

$$\frac{(x-1)^2}{8} + \frac{8}{(x-1)^2} = 2t^2 + 2.$$

51)



54)



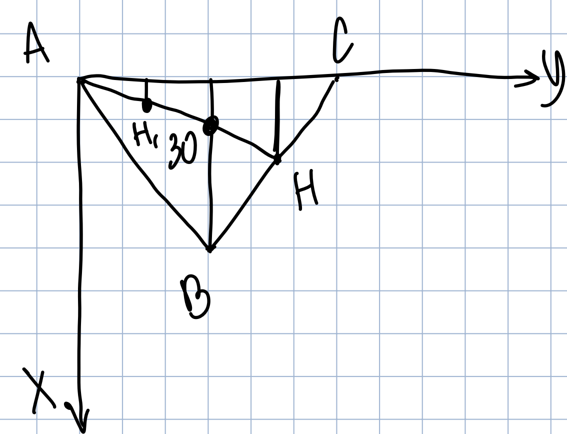
$\angle \widehat{HH_1, ABC}$

1) $H(15;\ 15\sqrt{3};\ 0)$

2) $H_1(5;\ 5\sqrt{3};\ \frac{21}{2})$

3) $S(10;\ 10\sqrt{3};\ 21)$

4) $O(10;\ 10\sqrt{3};\ 0)$



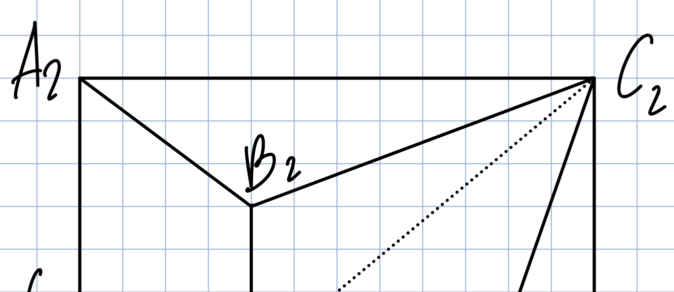
$SO^2 =$

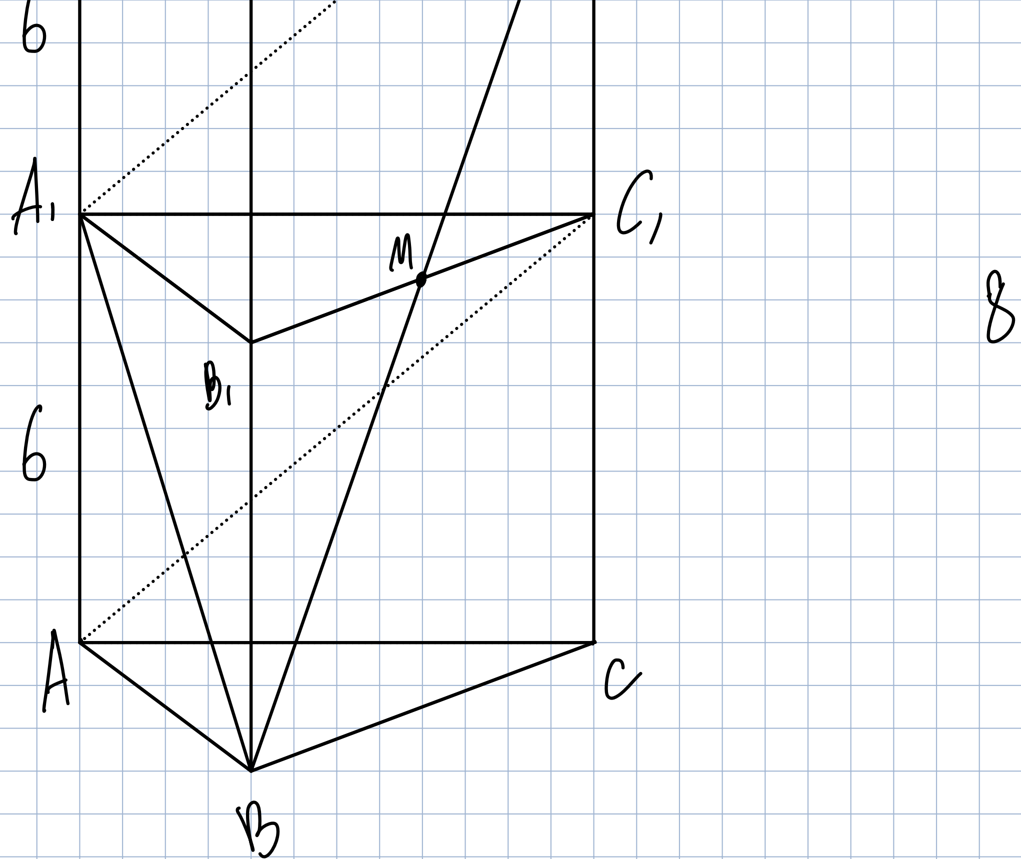
$$\overline{H_1H}\ \{10;\ 10\sqrt{3};\ -10{,}5\}$$

$$SO\ \{0;\ 0;\ -21\}$$

$$\sin\alpha = \frac{|220{,}5|}{\sqrt{400+\frac{441}{4}}\cdot\sqrt{441}} =$$

$$= \frac{220{,}5}{\frac{29}{2}\cdot\frac{21}{1}} = \frac{21\cdot 10{,}5}{1}$$





1) $\alpha \cap AA_2C_2C = A_1 \Rightarrow \alpha \cap AA_2C_2C = a \; (A_1 \in a)$

$a \in \alpha$

$a \in AA_2C_2C$

$A_1C_2 = a$

104.

ОДЗ:
$|x+1| \neq 0$
$x+1 \neq 0$
$x \neq -1$

$x+1=0;\ x=-1$

I сл. | II сл.

-1

$$\left[\begin{array}{l} \begin{cases} x<-1 \\ -(x+1)-\dfrac{6}{-(x+1)} \leq 5 \end{cases} \quad V \\ \begin{cases} x>-1 \\ (x+1)-\dfrac{6}{x+1} \leq 5 \end{cases} \quad V \end{array}\right.$$

---

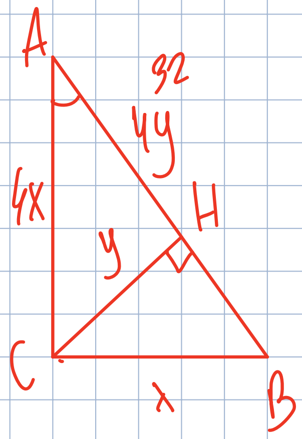
1) на след. ур. повт. эк. зад.

ДЗ. №5 полн-ью

1) задание 15 с сайта Босса заново изучить
2) W.A док-т № 1-100, 107, 132, 136, 140, 144,

1 посл. N кред + вклады + окт + ст. 2 г.

(6)



1) $x^2+16x^2=34^2$

$x^2=\frac{34^2}{17}=\frac{\overset{2}{\cancel{34}}\cdot 34}{\cancel{17}}=68$

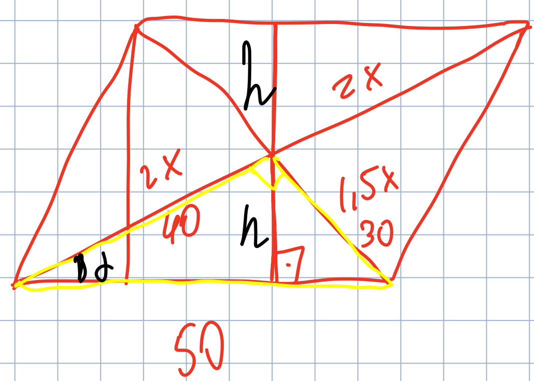
$x=\sqrt{68}$; $4x=4\sqrt{68}$

2) $y^2+16y^2=(4\sqrt{68})^2$

$y^2=\frac{16\cdot\overset{4}{\cancel{68}}}{\cancel{17}}=64$

$y=8.$

(10)



$x=10$

$4x^2+2{,}25x^2=2500$

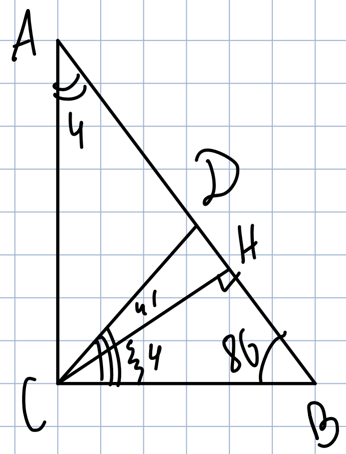
$x^2=\frac{2500}{6{,}25}=\frac{250000}{625}$

$x=\frac{500}{25}=20$

$$\sin\alpha = \frac{3}{5} = \frac{h}{40}$$

$$h = 24$$

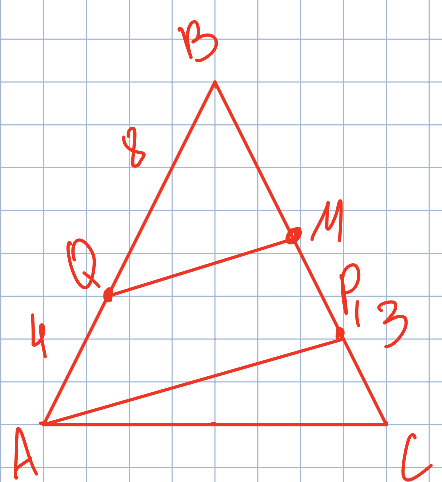
(26)



Д.З 1) весь №2

2) сборник Ш.А №2, 3, 4, 5, 6, 7, 10, 13, 19, 26, 29.

3) док-т №15 оптимиз-ия полн-ью



1) проведем $AP_1 \parallel A_1P$.

2) $QM \parallel A_1P$ (т.к. пл. $ABC \parallel A_1B_1C_1$)

$\Rightarrow QM \parallel AP_1$

3) $\triangle BQM \sim \triangle BAP_1$

$$k = \frac{BQ}{BA} = \frac{BM}{BP_1}$$

$$\frac{8}{12} = \frac{BM}{9}$$

$\sqrt{108}$

$$BM = 6$$

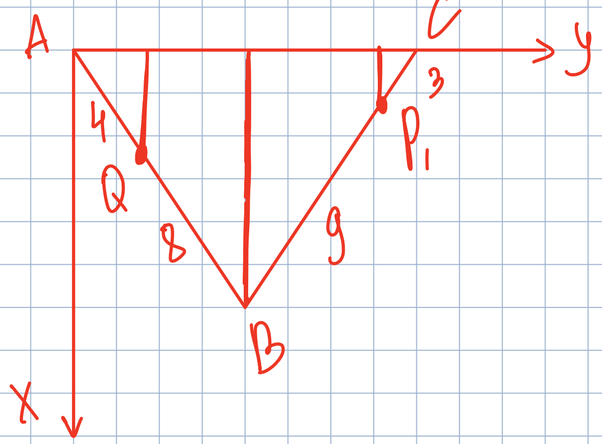
8) $d(B; A_1PQ)$

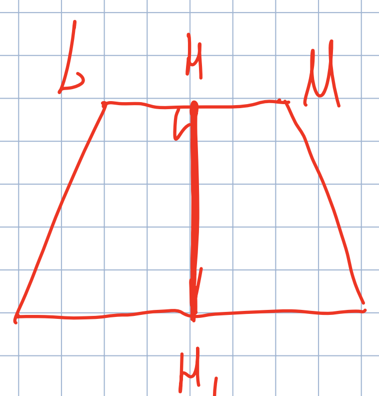
$B(6\sqrt{3}; 6; 0)$

$Q(2\sqrt{3}; 2; 0)$

$A_1(0; 0; 2)$

$P\left(\frac{3\sqrt{3}}{2}; \frac{21}{2}; 2\right)$





A_1PQ

$$\begin{cases} 2c + d = 0 \rightarrow c = -\frac{d}{2} \\ \frac{3\sqrt{3}}{2}a + \frac{21}{2}b + 2c + d = 0 \\ 2\sqrt{3}a + 2b + d = 0 \end{cases}$$

$2\sqrt{3}a+2b+d=0 \quad \Big| \cdot \frac{3}{4}$

$B(6\sqrt{3};\ 6;\ 0)$

$\frac{3\sqrt{3}}{2}a+\frac{3}{2}b+\frac{3}{4}d=0$

$9b+2c+\frac{d}{4}=0$

$9b-d+\frac{d}{4}=0$

$9b=\frac{3d}{4}$

$b=\frac{d}{12}$

$2\sqrt{3}a+\frac{d}{6}+d=0$

$2\sqrt{3}a=-\frac{7d}{6}$

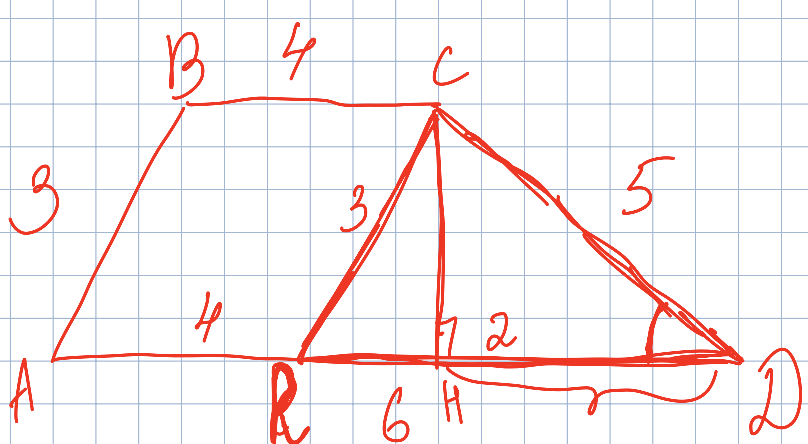
$a=-\frac{7d}{12\sqrt{3}}$

$$d(B;\ A_1PQ)=\frac{|ax_0+by_0+cz_0+d|}{\sqrt{a^2+b^2+c^2}}=$$

$$=\frac{\left|\frac{-7}{2\cancel{12\sqrt{3}}}\cdot\cancel{6\sqrt{3}}+\frac{1}{12}\cdot 6+1\right|}{\sqrt{\frac{49}{432}+\frac{1}{144}+\frac{1}{4}}}=\frac{2}{\sqrt{\frac{49+3+108}{432}}}$$

$$=\frac{2}{\sqrt{\frac{160}{432}}}=2:\sqrt{\frac{20}{54}}=$$

$$=2\cdot\sqrt{\frac{27}{10}}=\frac{6\sqrt{3}}{\sqrt{10}}=\frac{6\sqrt{30}}{10}=\frac{3\sqrt{30}}{5}$$



Д.З. 1) доделать + переделать старое

4, 6, 10, 19, 26

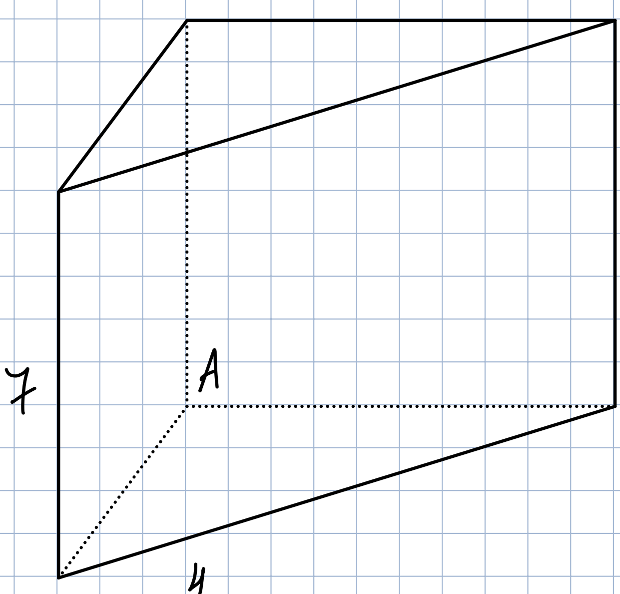
2) досмотреть и доучить оптим-ию.

3) фамил. И.А.

$+5\sin\alpha + 11\sin\alpha = 16\sin\alpha$

$\sin(2\pi+\alpha) = +\sin\alpha$

N19



$\overline{AA_1}\ \{\qquad\}$

$$\cos\alpha = \frac{4}{\sqrt{\frac{65}{49}} \cdot 7} = \frac{4}{\frac{\sqrt{65}}{7} \cdot 7} = \frac{4}{\sqrt{65}}$$

$$\angle(\widehat{ABC\ ADC_1}) = \arccos \frac{4}{\sqrt{65}}.$$

Временной интервал	Долг до %	Долг после %	Платеж	Остаток
нв 16 – нв 17	S	Sk	Sk - S	S
нв 17 – нв 18	S	Sk	Sk - S	S
нв 18 – нв 19	S	Sk	Sk - S	S
нв 19 – нв 20	S	Sk	360	Sk - 360
нв 20 – нв 21	Sk - 360	$Sk^2 - 360k$	360	0

$$Sk^2 - 360k - 360 = 0$$

9) $S = 50.000$; $k = 1{,}1$;

Саша

S

$\downarrow$

Sk

$\downarrow$

$Sk - 0{,}1Sk = 0{,}9Sk$

$\downarrow$

$0{,}9Sk^2$

$\downarrow$

$0{,}9Sk^2 - 20.000$

$\downarrow$

$0{,}9Sk^3 - 20.000k$

Паша

S

$\downarrow$

Sk

$\downarrow$

$0{,}8Sk$

$\downarrow$

$0{,}8Sk^2$

$\downarrow$

$0{,}8Sk^2 - 15.000$

$\downarrow$

$0{,}8Sk^3 - 15000k$

(11) $S_A \cdot k^3 = 192 \cdot 1{,}2^3$

$k = 1{,}2$

$n = 1{,}14$

$l = 1 + \frac{m}{100}$

$\underline{S_B \cdot n^3}$

$(a+b)^3 = (a+b)(a+b)^2$

$S_B = \frac{\text{кол-во } 3}{\text{кол-во } л.}$

$S_{B_3} = \frac{k \cdot 3 \cdot n^3}{k \cdot 1 \cdot l^3}$

$S_A \cdot k^3 = 375 \cdot \frac{n^3}{l^3}$

$192 \cdot 1{,}728 = 375 \cdot \frac{1{,}481544}{l^3}$

$331{,}776 = \frac{555{,}579}{l^3}$

$l = 1{,}1875$

$l = 1 + \frac{m}{100}$

$1 + \frac{m}{100} = 1{,}1875$

$\frac{m}{100} = 0{,}1875 \quad | \cdot 100$

$m = 18{,}75.$

21

(45)

I | II

300 ч/д | 1300 ч/д

Пусть x ч/д на Al $\to 2x$ кг | y ч/д на Al $\to 3y$

$300-x$ ч/д на Н $\to 900-3x$ кг Н | $1300-y$ ч/д на Н $\to 2600-2y$

Всего Al : $2x+3y$

Н : $900-3x+2600-2y$

$$2x+3y = 2\cdot(900-3x+2600-2y)$$

Сплава получится в 3 р б, чем добудем Н.

Наиб. знач ф-ии $\underline{3(900-3x+2600-2y)}$

10. $V = \frac{4}{3}\pi R^3$

$V_1 = \frac{4}{3}\pi R_1^3$ $\qquad$ $V_2 = \frac{4}{3}\pi R_2^3$

$$\frac{\frac{4}{3}\pi R_1^3}{\frac{4}{3}\pi R_2^3} = 2197$$

$$\left(\frac{R_1}{R_2}\right)^3 = 2197$$

$$\frac{R_1}{R_2} = \frac{13}{1}$$

$S_ш = 4\pi R^2$

$S_1 = 4\pi R_1^2$ $\qquad$ $S_2 = 4\pi R_2^2$

$$\frac{4\pi R_1^2}{4\pi R_2^2} = \frac{R_1^2}{R_2^2} = \left(\frac{R_1}{R_2}\right)^2 = \frac{169}{1}.$$

(15) $p \cdot V^{1,4} = const$

$V_1 = 1,6 \qquad p_1 = 1$

$V_2 - ? \qquad p_2 = 128$

$p_1 \cdot V_1^{1,4} = p_2 \cdot V_2^{1,4}$

$1 \cdot 1,6^{1,4} = 128 \cdot V^{1,4}$

2^7

$V^{1,4} = \frac{1,6^{1,4}}{128}$

$128 = (2^5)^{1,4} = 32^{1,4}$

$V^{1,4} = \frac{1,6^{1,4}}{32^{1,4}}$

$V = \frac{1,6}{32} = 0,05$

(16) $\overset{224}{S_n} = \frac{\overset{3}{a_1} + a_n}{2} \cdot \overset{14}{n}$

$224 = (3 + a_n) \cdot 7$

$3 + a_n = 32$

$a_n = 29$ — на 14 день

$a_{14} = a_1 + 13d$

$29 = 3 + 13d$

$d = 2.$

$a_9 = a_1 + 8d = 3 + 16 = 19.$

$(x+4)\cdot\cos x - 1(x+4) = 0$

$-2\pi \le \frac{\pi}{4} + \pi n \le -\frac{\pi}{2} \quad | : \pi$

$-2 \le \frac{1}{4} + n \le -\frac{1}{2} \quad | \quad -\frac{1}{4}$

$-2\frac{1}{4} \le n \le -\frac{3}{4}$

$n = -2; -1$

$n = -2; \quad x = \frac{\pi}{4} + \pi\cdot(-2) = -\frac{7\pi}{4}$

$n = -1; \quad x = \frac{\pi}{4} - \pi = -\frac{3\pi}{4}$

[illegible]

$\frac{3\pi}{2} \le \pi n \le 3\pi \quad |:\pi$

$\frac{3}{2} \le n \le 3$

$n = 2$

$n = 3.$

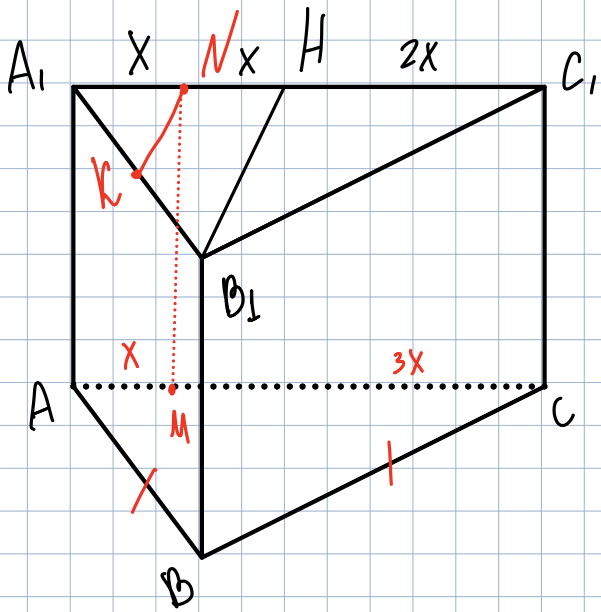
№28.

1) Опустим высоту MN на пл. $A_1B_1C_1$ ($A_1N : NC_1 = 1:3$)

2) $MN \perp ABC$ (т.к. $MN \perp A_1B_1C_1$)

$\Rightarrow MN \perp KN$

$\Rightarrow KN$



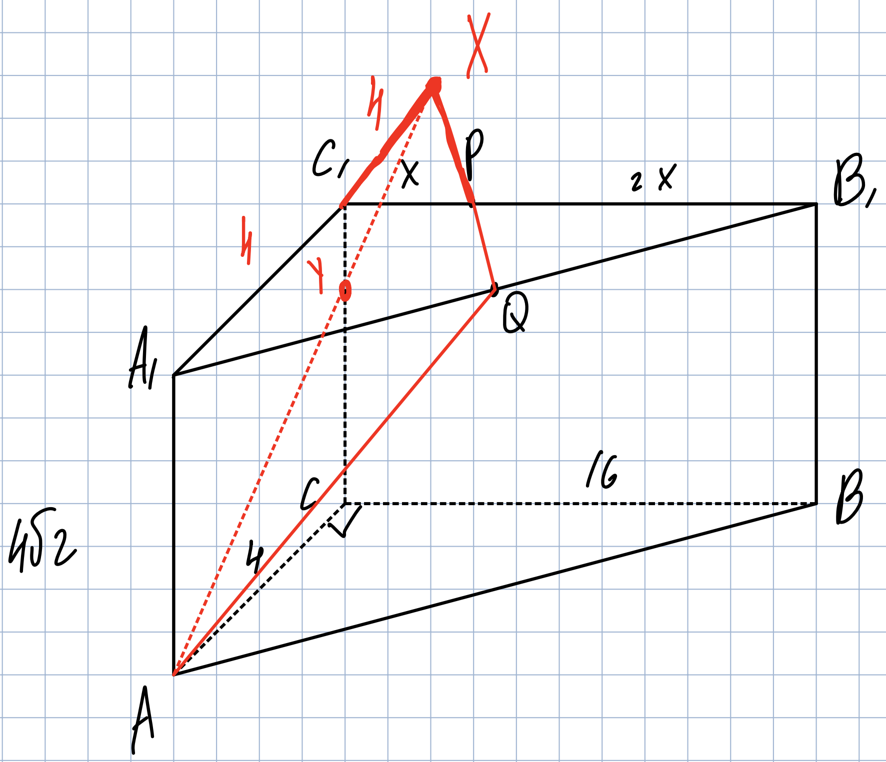
1) опустим $MN \perp A_1C_1$ $(A_1N : NC_1 = 1 : 3)$

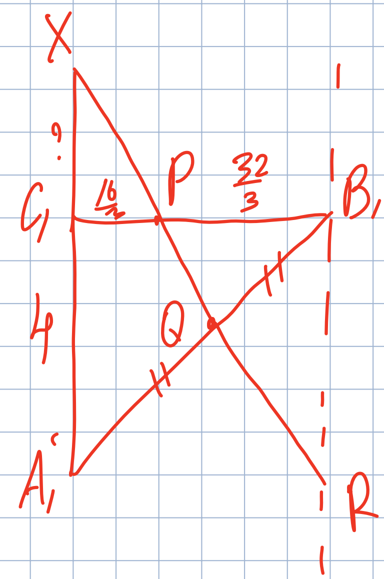
2) опустим $B_1H \perp A_1C_1 \Rightarrow A_1H = 2x$

$\Rightarrow KN \parallel B_1H \Rightarrow KN \perp A_1C_1$

$A_1C_1 \perp KN$ и $MN \Rightarrow A_1C_1 \perp$ пл. $KNM \Rightarrow$

$\Rightarrow A_1C_1 \perp MK$.





док, что $CY : YC_1 = 1:1$

$\triangle XC_1P$ $\quad$ C_1 – сер. ; $C_1X = 4$

$3x+4y$ $\quad$, $x = \sqrt{10.000 - y^2}$

$$f(y) = 3\cdot\sqrt{10.000 - y^2} + 4y$$

$$f'(y) = \underbrace{\frac{3\cdot(-2y)}{2\sqrt{10.000-y^2}} + 4}_{} = 0$$

$$-6y + 8\sqrt{10.000-y^2} = 0$$

$$8\sqrt{} = 6y$$

$$\frac{-540}{2\cdot\sqrt{1900}} + 4$$

$$\frac{-540}{20\sqrt{19}} + 4$$

$$\frac{-27}{\sqrt{19}} + 4$$

$$64\cdot(10.000-y^2)=36y^2$$

$$64\cdot 10.000 = 100y^2$$

$$y^2 = 64\cdot 100$$

$$y = 8\cdot 10 = 80$$

$+ \quad 80 \quad -$

max

$$y(80) = 3\cdot 60 + 240 = 180+240=420.$$

показ-ая ф-ия + лог.

1. задание 12, 13, 14, 15 выучить.
2. ссылка W.A. № ~~2~~, ~~6~~, ~~14~~, 15, 24, ~~29~~, ~~32~~, ~~34~~, ~~40~~, ~~52~~, ~~62~~, ~~65~~, ~~69~~.

(69) I шахта | II

100 ч/ч | 500 ч/ч

Пусть на Алюмин. x ч/ч $\Rightarrow x$ кг Ал | Пусть y ч/ч на Ал: $2y$ кг Ал

Н : $100-x$ ч/ч $\Rightarrow 200-2x$ | $500-y$ ч/ч на Н : $500-y$ кг.

$$x+2y = 2(200-2x+500-y)$$

$$x+2y = 1400-4x-2y$$

$$x = \frac{1400-4y}{5} \quad ; \quad \frac{1400-4y}{5} \geq 0$$

$$1400-4y \geq 0; \quad y \leq 350$$

Масса добытого сплава будет в 3 р. б. массы добытого Н.

$C = 3H = 3 \cdot (700-2x-y) = 2100-6x-3y$ – нужно найти наиб. знач. этой ф-ции.

$$C = 2100 - 1{,}2(1400-4y) - 3y = 2100-1680+4{,}8y-3y =$$

$$= 420+1{,}8y$$

Нужно найти наиб. знач $420+1{,}8y$ $y[0; 350]$

$\Rightarrow y = 350$; Сплав $= 420+1{,}8 \cdot 350 = 1050.$

$$8\left(Sk - S + x + (S - 15x)k - 400\right) + 400k = 1608$$

$$2Sk - S + x \quad - 15kx - 400 + 50k = 201$$

$k = 1{,}03$

$$S - 16x = 400 \quad ; \quad S = \underline{400 + 16x}$$

$$2(400 + 16x) \cdot k - 400 - 16x + x - 15 \cdot k \cdot x - 400 + 50k = 201$$

$$824 + 32{,}96x - 400 - 15x - 15{,}45x - 400 + 51{,}5 = 201$$

$$2{,}51x \qquad = 725{,}5$$

$$x = 50$$

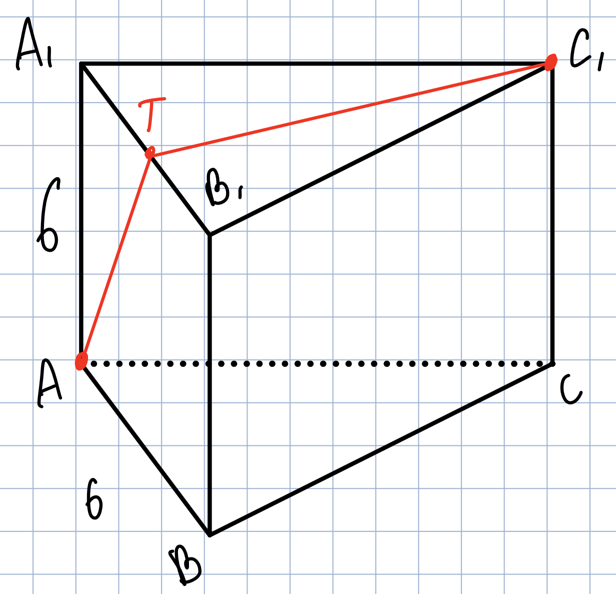
$$-14k(400 + 16x) - 15x + 50k \qquad = 1001$$

$$-14{,}42(400 + 16x) - 15x + 51{,}5 = 1001$$

$$-5768 - 230{,}72x - 15x + 51{,}5 = 1001$$

$$-245{,}72x =$$

②



$$\frac{4(8^x-5)}{8^{2x}-16}-1\le 0$$

Пусть $8^x=t,\ t>0$

$$\frac{4(t-5)-t^2+16}{t^2-16}\le 0$$

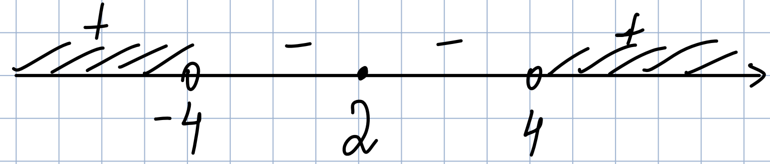
$$\frac{t^2-4t+4}{t^2-16}\ge 0$$

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

$t=2$ (кр)

$t^2-16\ne 0$

$t=\pm 4$

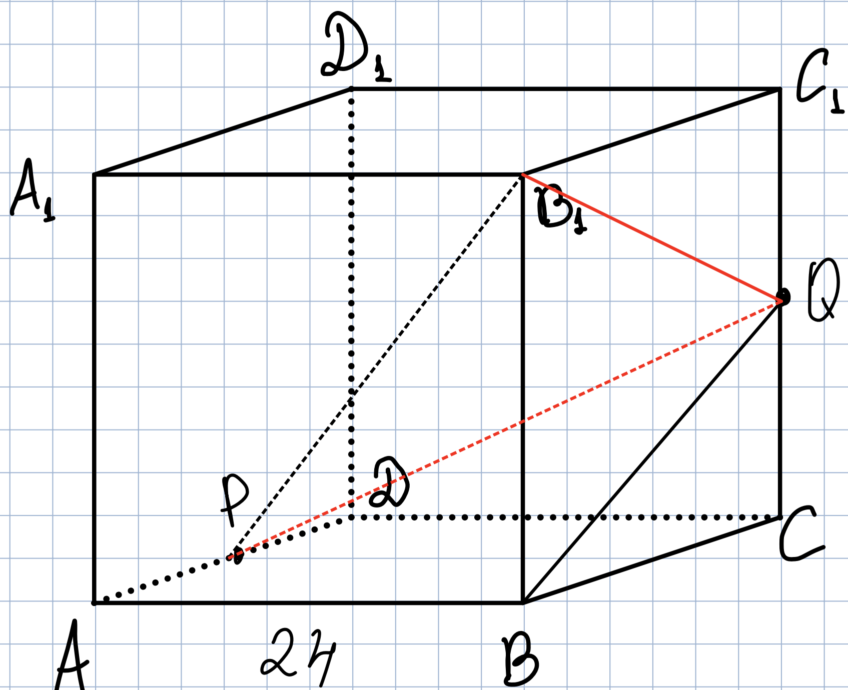


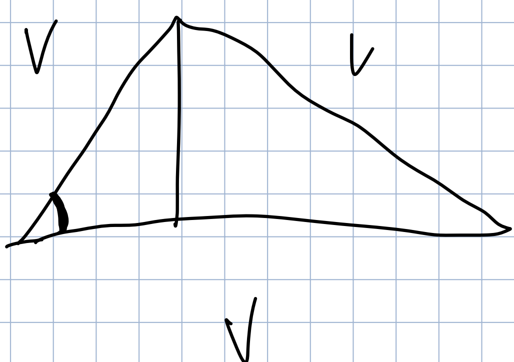
$$\left[\begin{array}{l} t < -4 \\ t = 2 \\ t > 4 \end{array}\right. \qquad \left[\begin{array}{l} 8^x < -4 \text{ нет реш.} \\ 8^x = 2 \\ 8^x > 4 \end{array}\right.$$

$$\left[\begin{array}{l} 2^{3x} = 2 \\ 2^{3x} > 2^2 \end{array}\right. \qquad \left[\begin{array}{l} 3x = 1 \\ x > \frac{2}{3} \end{array}\right. \qquad \left[\begin{array}{l} x = \frac{1}{3} \\ x > \frac{2}{3} \end{array}\right.$$

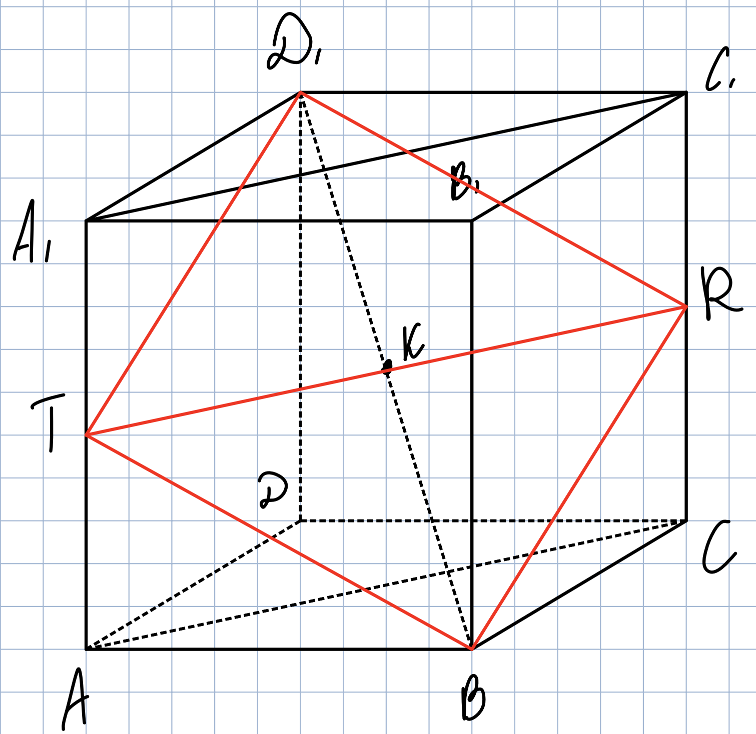
Ответ: $x \in \left\{\frac{1}{3}\right\} \cup \left(\frac{2}{3}; +\infty\right)$.

4





7.



1) $\alpha \cap AA_1C_1C = K$ (K – сер. BD_1)

$\Rightarrow \alpha \cap AA_1C_1C = a$ ($K \in a$)

$a = TR$, где T и R – сер. AA_1 і C_1C.

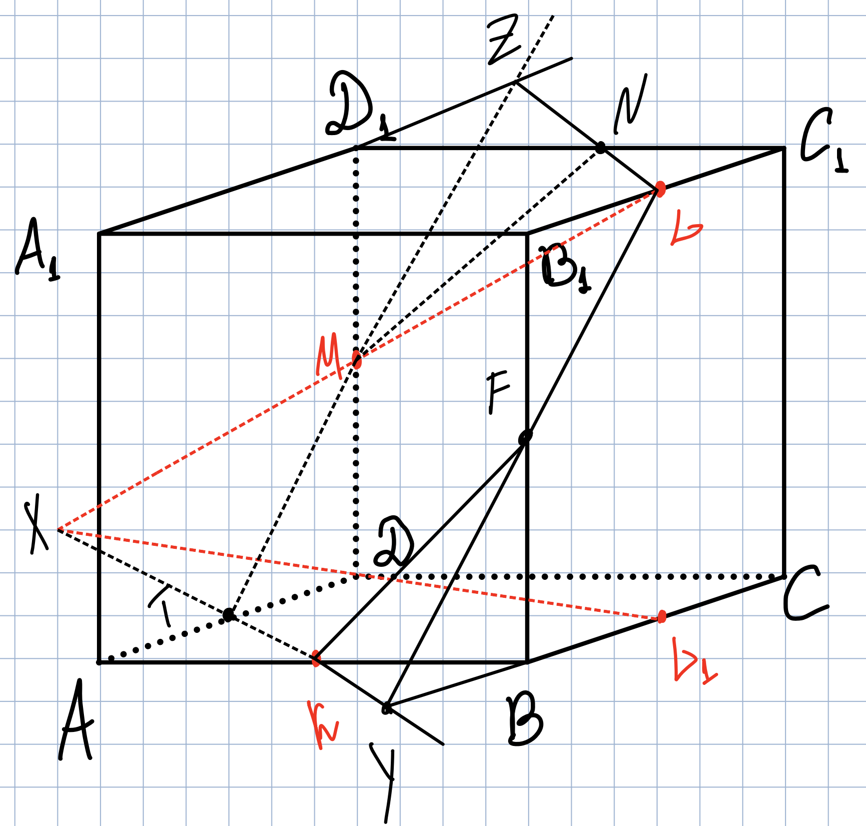
$\alpha = BTD_1R$ (ромб)

Пусть $AT = x$; $AB = \sqrt{BT^2 - x^2}$

$AD = A_1D_1 = \sqrt{TD_1^2 - x^2}$

2)

9



$$S_n = \frac{a_1 + a_n}{2} \cdot n$$

$a_n =$

$224 = 7(3 + a_n)$

$32 = 3 + a_n$

$a_n = 29.$ $\qquad a_{14} = a_1 + 13d$

$$29 = 3 + 13d$$

$$d = 2$$

$$a_9 = 3 + 8 \cdot 2 = 19$$

$$\sqrt{x^3 - 4x^2 - 10x + 29} = 3 - x$$

$$\begin{cases} x^3 - 4x^2 - 10x + 29 \geq 0 \\ 3 - x \geq 0 \\ \sqrt{x^3 - 4x^2 - 10x + 29} = 3 - x \end{cases}$$

$$\begin{cases} x^3 - 4x^2 - 10x + 29 \geq 0 \\ 3 - x \geq 0 \\ x^3 - 4x^2 - 10x + 29 = (3 - x)^2 \end{cases}$$

$$\begin{cases} 3 - x \geq 0 \\ x^3 - 4x^2 - 10x + 29 = (3 - x)^2 \end{cases}$$

$$3^{2x}(5^x-3^x)-18\cdot 3^x(5^x-3^x)+81(5^x-3^x)\le 0$$

$$(5^x-3^x)(3^{2x}-18\cdot 3^x+81)\le 0$$

$5^x-3^x=0$

$5^x=3^x \quad |:3^x$

$\left(\frac{5}{3}\right)^x=\left(\frac{5}{3}\right)^0$

$a^2-2ab+b^2$

a^2+b^2

$57-14\sqrt{8}$

$2ab$

$28\sqrt{2}$

$$(7-2\sqrt{2})^2=\frac{(2\sqrt{2}-7)^2}{\cancel{2\sqrt{2}-7}}=2\sqrt{2}-7$$

$2ab=28\sqrt{2}$

$ab=14\sqrt{2}$

a	14	7
b	$\sqrt{2}$	$2\sqrt{2}$

$$\frac{x+3}{5} - \frac{2}{x+3} = t \quad \uparrow^2$$

$$\frac{(x+3)^2}{25} - \frac{4}{5} + \frac{4}{(x+3)^2} = t^2 \quad \Big| \cdot 5$$

$$\frac{(x+3)^2}{5} + \frac{20}{(x+3)^2} = 5t^2 - 4$$

$\cos 2x - \sin^3 x$

$\cos 2x \in (-1; 1)$

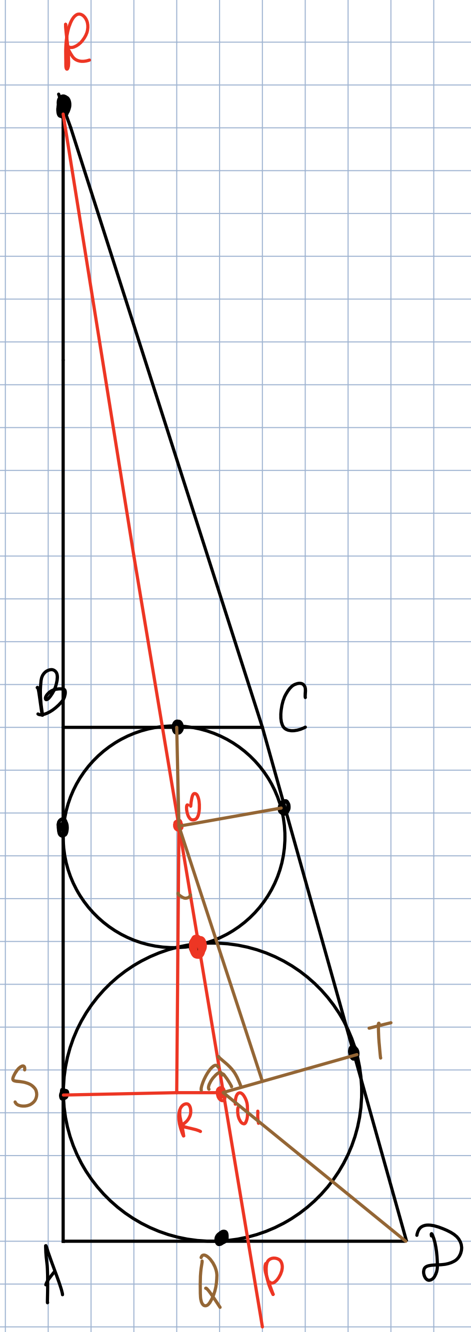
$\sin 3x \in (-1; 1)$

Наим. знач $\cos 2x - \sin^3 x = -2$

$\cos 2x - \sin^3 x \geq -2$

$\cos 2x - \sin^3 x + 3 \geq 1$

(91)



Док, что $\frac{AP}{PD} = \sin D$

$OM = 2\sqrt{3}$

$h = 2\sqrt{3}+4.$

$\angle O_1DT = 15^\circ$

$\sin O_1DT = \sin(45-30) =$

$= \sin 45 \cdot \cos 30 - \sin 30 \cdot \cos 45 =$

$= \frac{\sqrt{6}}{4} - \frac{\sqrt{2}}{4} = \frac{\sqrt{6}-\sqrt{2}}{4}$

$\frac{\sqrt{6}-\sqrt{2}}{4} = \frac{O_1T}{O_1D}$

$O_1D = \frac{12}{\sqrt{6}-\sqrt{2}} = \frac{12\sqrt{6}+12\sqrt{2}}{4} = 3\sqrt{6}+3\sqrt{2}$

$TD = \sqrt{54 + 18\sqrt{12} + 9}$

$\cancel{54 + 18\sqrt{12} + 18 - 9}$

$TD = \sqrt{63 + 36\sqrt{3}} = \underline{6 + 3\sqrt{3}}$

$36\sqrt{3} = 2ab$

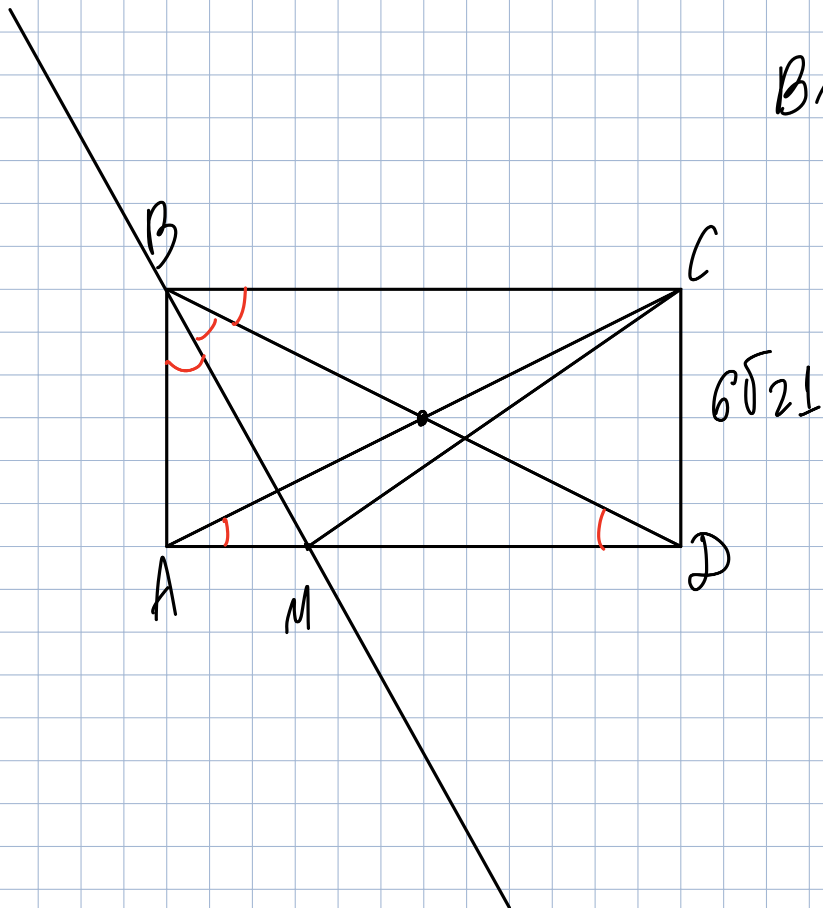
$ab = 18\sqrt{3}$

$6 \quad 3\sqrt{3}$

$a \quad b$

$QD = 6 + 3\sqrt{3}; \quad AD = 9 + 3\sqrt{3}$

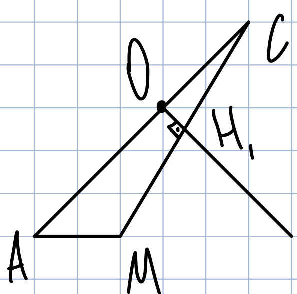
$BM = MD$



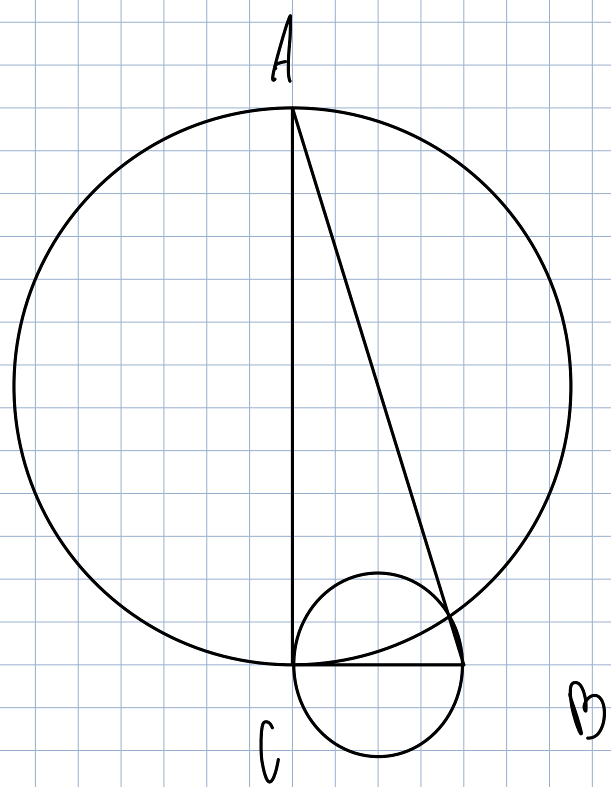
AM v

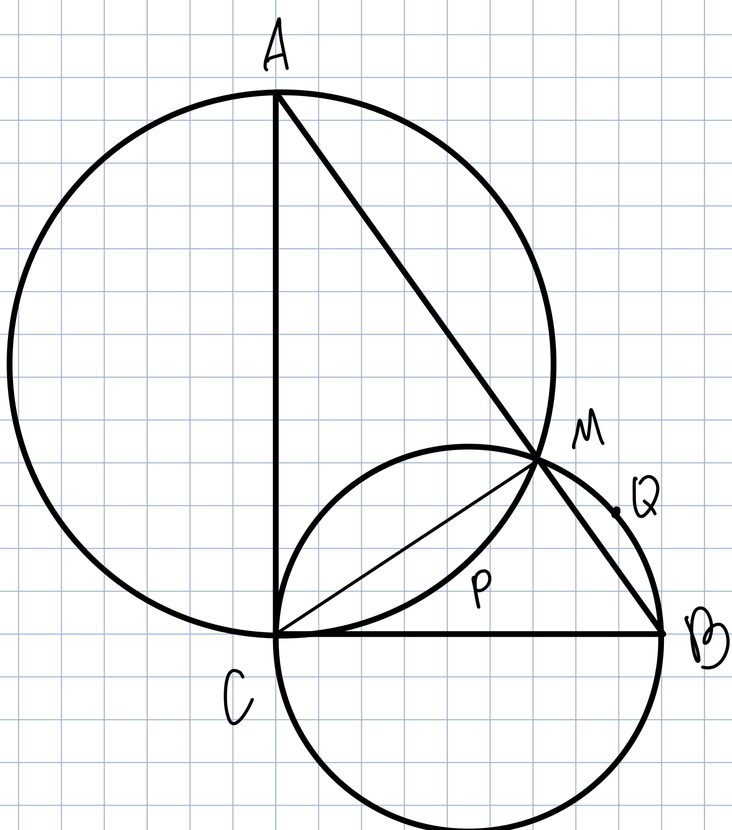
MC v

AC v

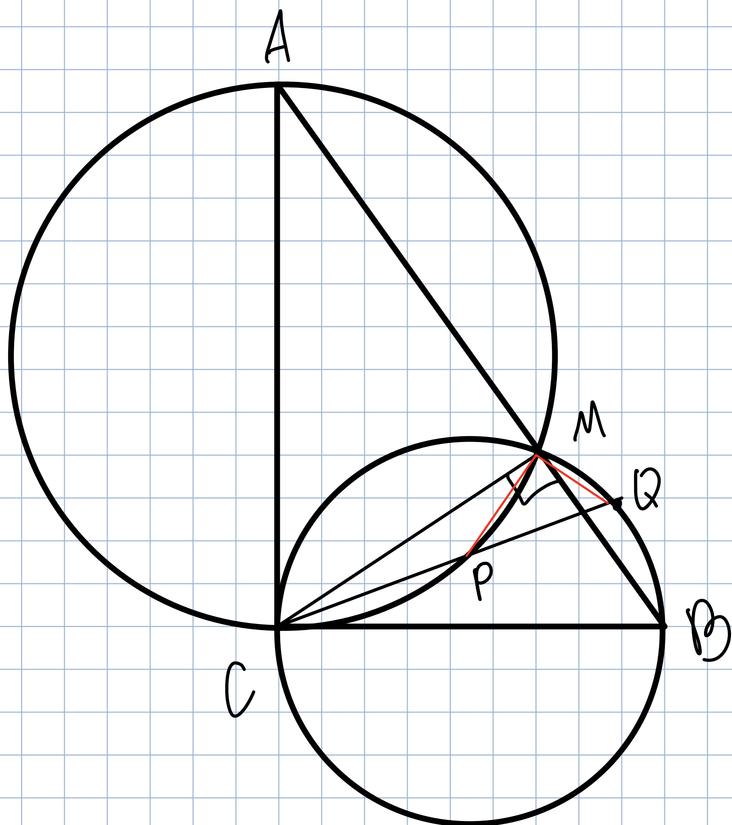


104





док, что $\angle PMQ = 90^\circ$

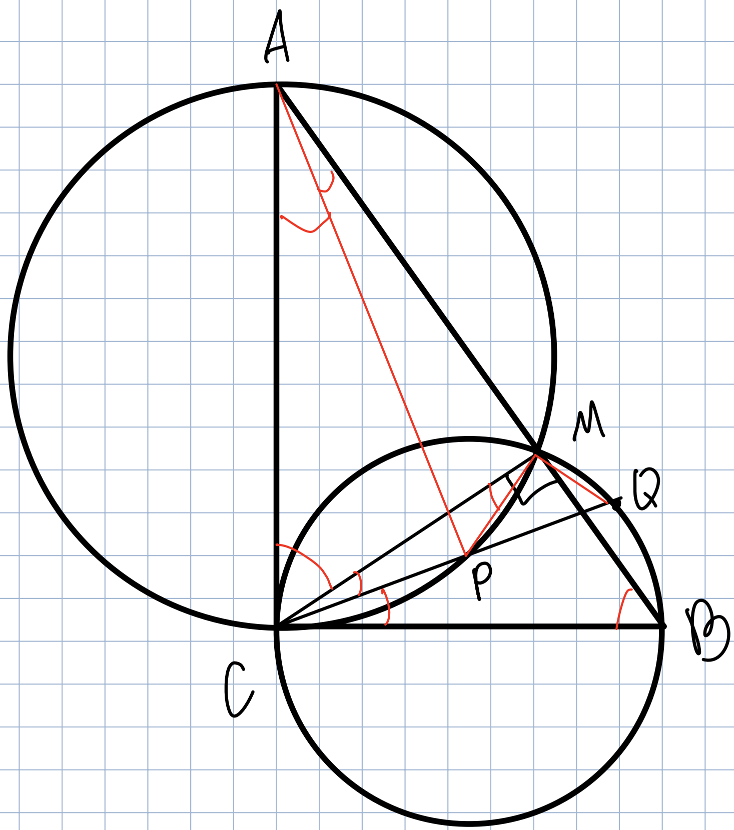


1) $\angle CPM = 180 - \angle A$

$\Rightarrow \angle MPQ = 180 - \angle CPM = 180 - (180 - \angle A) = \angle A$

2) $\angle MQC = \angle MQP = \angle B$

3) $\angle PMQ = 180 - \angle MPQ - \angle MQP = 180 - \angle A - \angle B = 90.$



$AM = 1$

$BM = 3$

Q — сер. MB

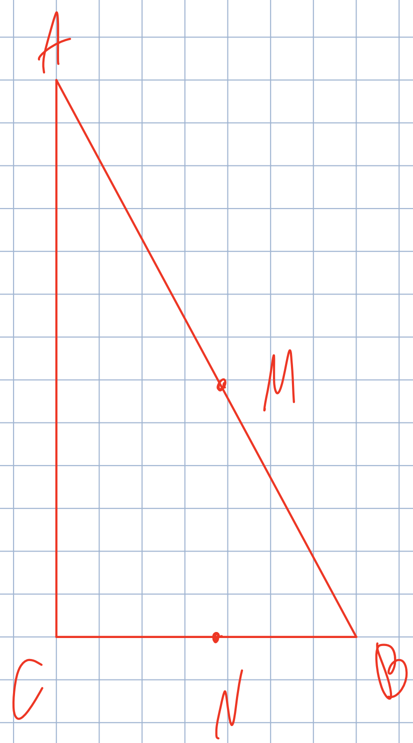
PQ — ?

1) $CM^2 = AM \cdot MB$

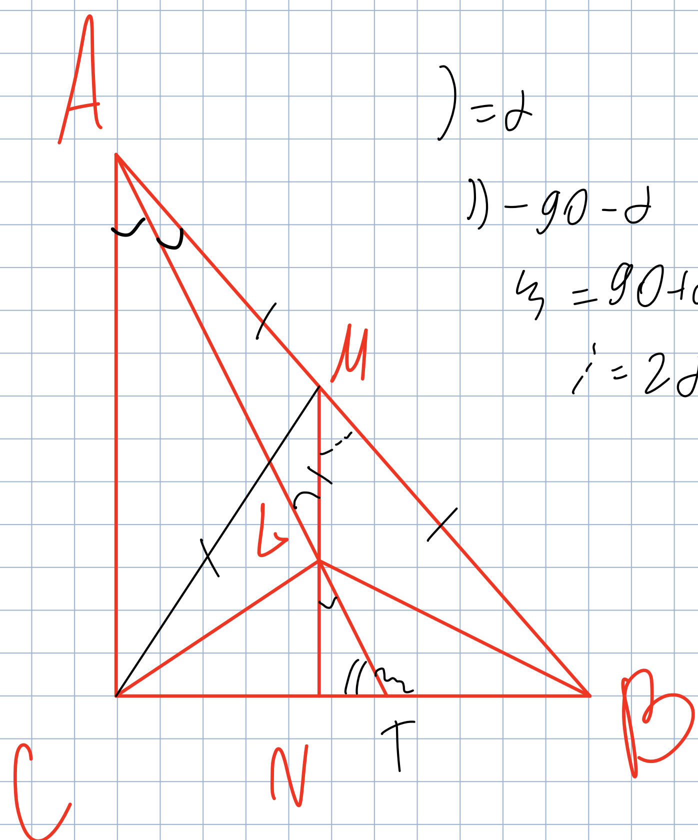
$CM = \sqrt{3}$

2)

1047



док, что ALM і BLC



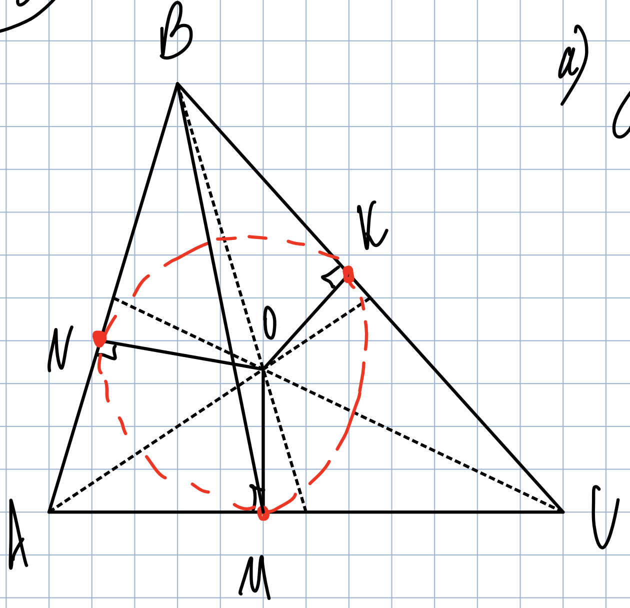
$) = \alpha$

$)) = 90 - \alpha$

$\wr = 90 + \alpha$

$/ = 2\alpha$

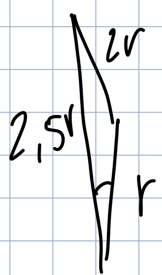
109



а) док, що $BM \le 3r$

б) $\sin BMC$ - ? Если $BM = 2{,}5r$

$$\sin\angle CMB = \sin(90 + \angle OMB) = \cos\angle OMB$$

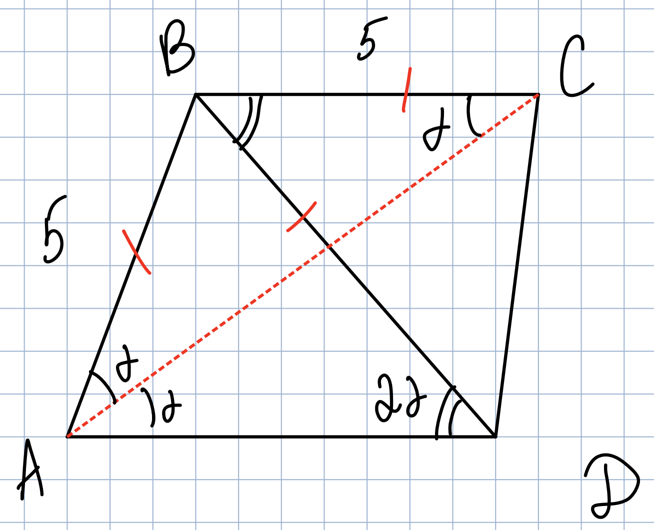


$$4r^2 = 6{,}25r^2 + r^2 - 2\cdot 2{,}5r\cdot r\cdot\cos\alpha$$

$$-3{,}25r^2 = -5r^2\cos\alpha$$

$$\cos\alpha = \frac{3{,}25}{5} = \frac{6{,}5}{10} = 0{,}65.$$

(98)



док, что $\angle BAC = \angle CAD$

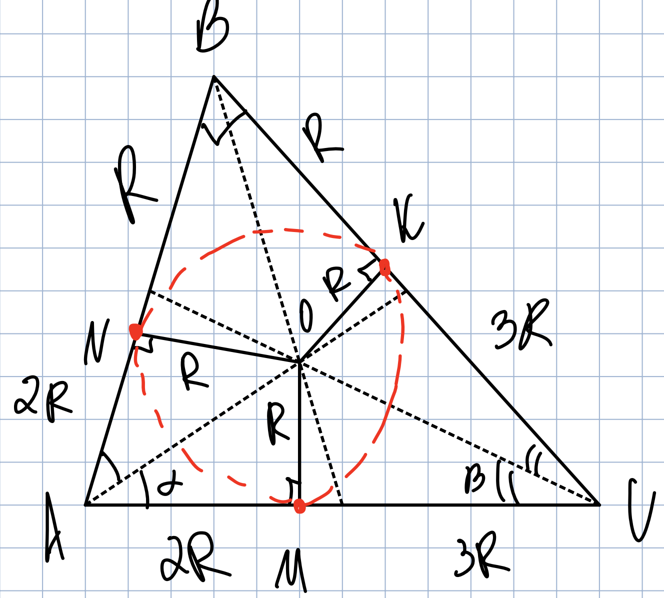
б) $BD = 5$; $AC = 8$

$\left(\frac{4}{5}\right)^2 = \frac{16}{25}$

$\angle ABC = 180 - 2\alpha$

! Найти $\cos DBC$; $\cos 2\alpha = 2\cos^2\alpha - 1 = \frac{32}{25} - 1 = \frac{7}{25}$

96



1) Найти ∠NAM – ?

$AO = \sqrt{5}R$

$\cos\alpha = \frac{2}{\sqrt{5}}$; $\cos\angle NAM = 2\cos^2\alpha - 1 = 2\cdot\frac{4}{5} - 1 = \frac{3}{5}$

! $\sin NAM = \frac{4}{5}$

2) Найти $\angle MCK$

$\cos\beta = \frac{3}{\sqrt{10}}$

$\cos\angle MCK = 2\cos^2\beta - 1 = 2 \cdot \frac{9}{10} - 1 = \frac{4}{5}$; $\sin\angle MCK = \frac{3}{5}$

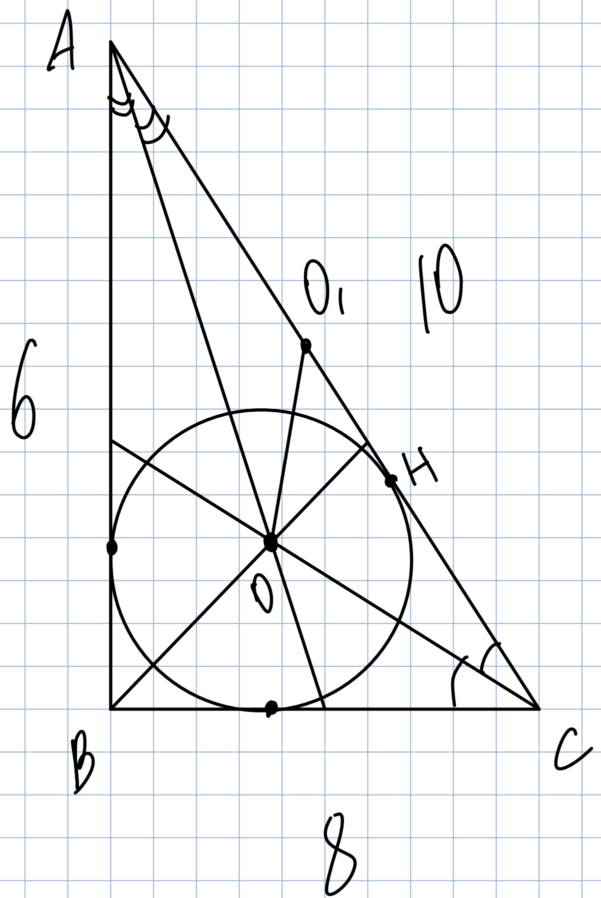
3) $\cos ABC = \cos(180 - (\angle NAM + \angle MCK)) =$

$= -\cos(\angle NAM + \angle MCK) =$

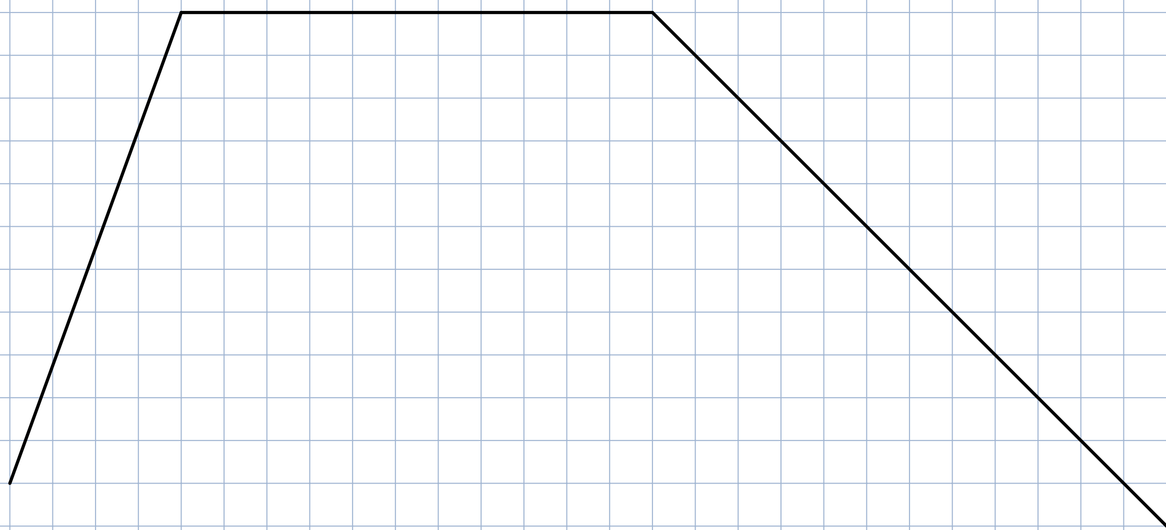
$= \sin \quad \sin \quad - \cos \quad \cos$

$\frac{4}{5} \cdot \frac{3}{5} - \frac{4}{5} \cdot \frac{3}{5} = 0.$

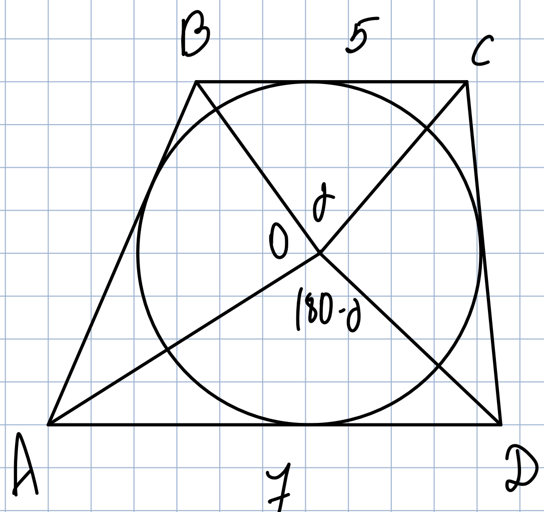
8)



92

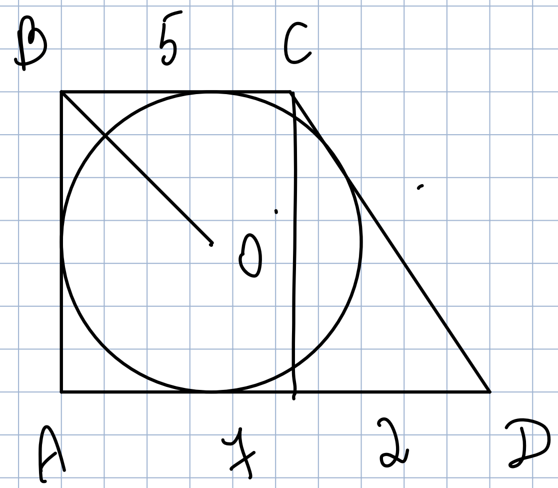


92



$$\sin(180-\alpha)=\sin\alpha$$

20)



21) $4x^2+3\cdot 3^{\sqrt{x}}+x\cdot 3^{\sqrt{x}}-2x^2\cdot 3^{\sqrt{x}}-2x-6<0$

$$\begin{cases} 3^{\sqrt{x}}\left(3+x-2x^2\right)-2\left(3+x-2x^2\right)<0 \\ x\geq 0 \end{cases}$$

$$\begin{cases} \left(3^{\sqrt{x}}-2\right)\left(2x^2-x-3\right)>0 \\ x\geq 0 \end{cases}$$

$3^{\sqrt{x}}-2=0$

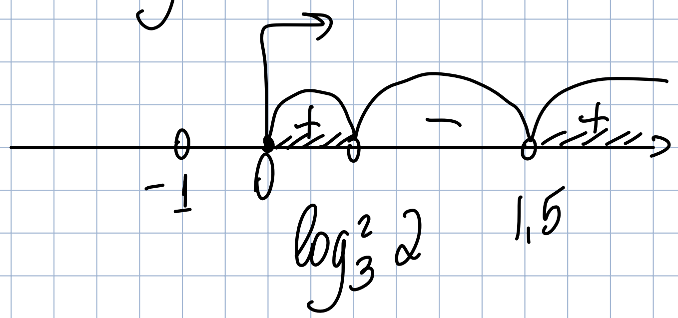
$3^{\sqrt{x}}=3^{\log_3 2}$

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

$x_1=-1$

$\sqrt{x} = \log_3 2$ $\qquad x_2 = 1{,}5$ $\qquad \log_3^2 2 \vee 1{,}5$

$x = \log_3^2 2$



(23) $$\frac{\log_3(9x)\cdot\log_4(64x)}{5x^2-|x|} \le 0$$

$$\begin{cases} 9x > 0 \\ 64x > 0 \\ 5x^2 - |x| \neq 0 \\ \dfrac{\log_3(9x)\cdot\log_4(64x)}{5x^2-|x|} \le 0 \end{cases}$$

$$\begin{cases} x > 0 \\ 5x^2 - x \neq 0 \\ \dfrac{\log_3(9x)\cdot\log_4(64x)}{5x^2-x} \le 0 \end{cases}$$

$$\begin{cases} x > 0 \\ x \neq 0;\ x \neq \frac{1}{5} \\ \\ \end{cases}$$

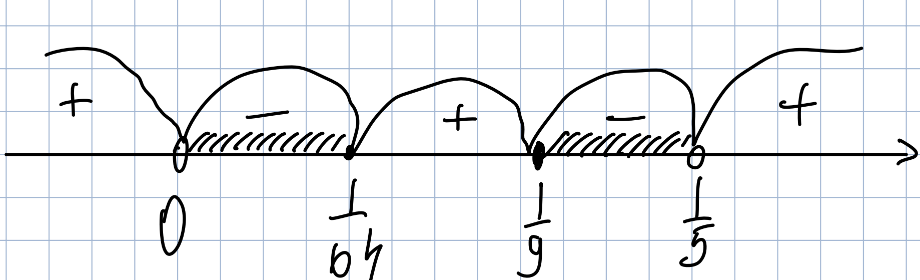
$$x \in \left(0; \frac{1}{5}\right) \cup \left(\frac{1}{5}; +\infty\right)$$

$$\frac{\log_3(9x) \cdot \log_4(64x)}{5x^2 - x} \leq 0$$

$$\log_3(9x) \cdot \log_4(64x) = 0 \qquad\qquad 5x^2 - x \neq 0$$

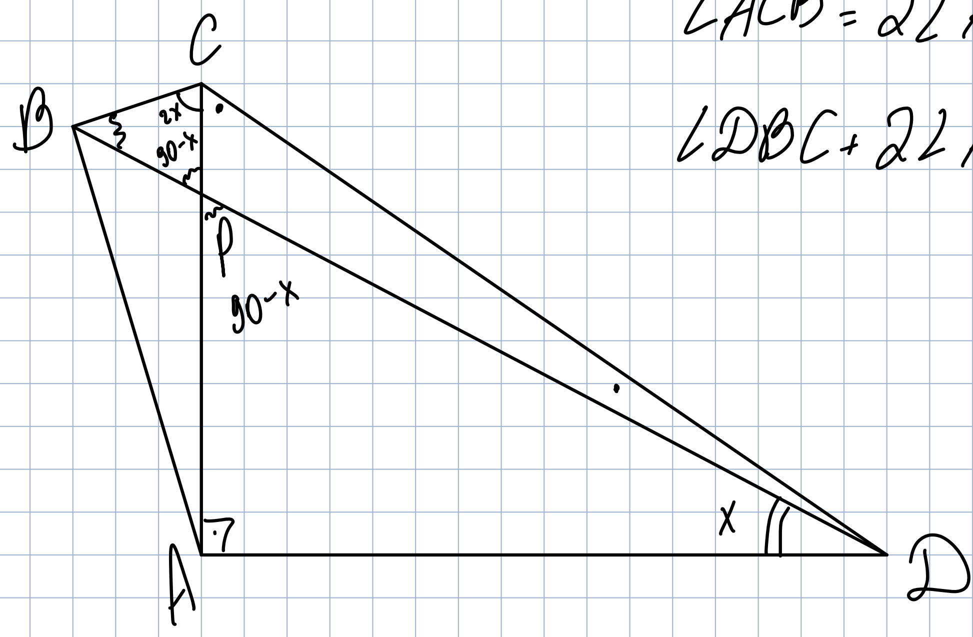
$$\log_3(9x) = 0 \qquad \log_4(64x) = 0 \qquad\qquad 5x^2 - x \neq 0$$

$$x = \frac{1}{9} \qquad\qquad x = \frac{1}{64} \qquad\qquad x \neq 0;\ x \neq \frac{1}{5}$$



28 $\sqrt{25^x - 2^{3-x}} < 7 \cdot 2^{-\frac{x}{2}} - 2 \cdot 5^{-x}$

(16)



$\angle ACB = 2\angle ADB$

$\angle DBC + 2\angle ADC = 180$

$2y + 2x + 90 - x = 180$

$2y + x = 90$

$y = \frac{90-x}{2}$

$\angle ACD = 90 - \frac{90-x}{2} =$

20 мин в запасе в СБ.

1) переделать № 22, 25, 26, 27, 29,

2) новый файл

3) повторить иррац. нер-ва (зад. 14

$9^x - 5\cdot 12^x + 4^{2x+1} = 0$

$t_1 = 1;\ t_2 = 4$

$\left(\frac{3}{4}\right)^x = 1$

$x = 0$

$\left(\frac{3}{4}\right)^x = 4$

$\left(\frac{3}{4}\right)^x = \left(\frac{3}{4}\right)^{\log_{\frac{3}{4}} 4}$

$x = \log_{\frac{3}{4}} 4.$

$\log_2(6x^2 - 11x + 4) \neq 0$

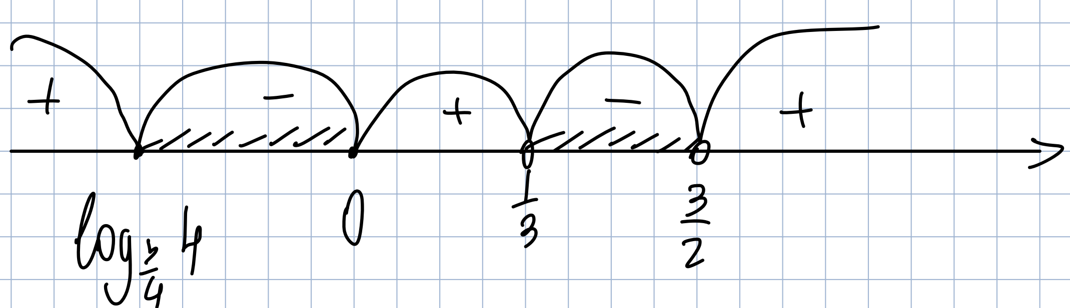
$6x^2 - 11x + 4 \neq 1$

$6x^2 - 11x + 3 \neq 0$

$D = 121 - 72 = 49$

$x_1 \neq \frac{11+7}{12} = \frac{3}{2}$

$x_2 \neq \frac{1}{3}$



28

$$\sqrt{25^x - 2^{3-x}} < 7 \cdot 2^{-\frac{x}{2}} - 2 \cdot 5^x$$

Пусть $5^x = t;\ 2^{-\frac{x}{2}} = p$

$$2^{-\frac{x}{2}} = \left(2^{-x}\right)^{\frac{1}{2}}$$

$$\sqrt{t^2 - 8p^2} < 7p - 2 \cdot t$$

$$\left[\begin{array}{l} 7p - 2t = 0 \quad (1) \quad - \\ \begin{cases} 7p - 2t > 0 \\ t^2 - 8p^2 \geq 0 \\ t^2 - 8p^2 < 49p^2 - 28pt + 4t^2 \end{cases} \\ \begin{cases} 7p - 2t < 0 \end{cases} \quad \varnothing \end{array}\right.$$

$$7 = \underline{5^{\log_5 7}}$$

(1) $$7 \cdot 2^{-\frac{x}{2}} = 2 \cdot 5^x$$

$$7 \cdot 2^{-\frac{x}{2} - 1} = 5^x$$

$$2^{-\frac{x}{2} - 1} = 5^{x - \log_5 7}$$

$\emptyset$

$5^x = t;\ 2^{-\frac{x}{2}} = p$

$$\begin{cases} 7p - 2t > 0 & (1) \\ t^2 - 8p^2 \geq 0 & (2) \\ t^2 - 8p^2 < 49p^2 - 28pt + 4t^2 & (3) \end{cases}$$

(1) $7p - 2t > 0$

$$7 \cdot 2^{-\frac{x}{2}} - 2 \cdot 5^x > 0$$

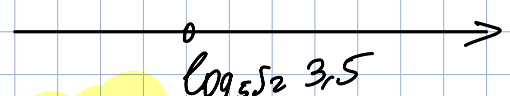
$$2^{-\frac{x}{2} + \log_2 7} > 2^{1 + \log_2 5^x}$$

$$-\frac{x}{2} + \log_2 7 > 1 + x \cdot \log_2 5$$

$$x\left(\log_2 5 + \frac{1}{2}\right) < \log_2 7 - 1$$

$$x \cdot \log_2 5\sqrt{2} < \log_2 \frac{7}{2}$$

$$x < \frac{\log_2 3{,}5}{\log_2 5\sqrt{2}}$$



$$x < \log_{5\sqrt{2}} 3{,}5$$

(2) $25^x - 8 \cdot 2^{-x} \geq 0 \quad \Big| \cdot 2^x, \; 2^x > 0$

$50^x \geq 8$

$50^x \geq 50^{\log_{50} 8}$

$x \geq \log_{50} 8$

$\log_{50} 8$

(3) $5^x = t; \; 2^{-\frac{x}{2}} = p$

$t^2 - 8p^2 < 49p^2 - 28pt + 4t^2$

$25^x - 8 \cdot 2^{-x} < 49 \cdot 2^{-x} - 28 \cdot 5^x \cdot 2^{-\frac{x}{2}} + 4 \cdot 25^x$

$3 \cdot 25^x - 28 \cdot 5^x \cdot 2^{-\frac{x}{2}} + 57 \cdot 2^{-x} > 0$

$\downarrow$

$\left(2^{-\frac{1}{2}}\right)^x$

$\left(\frac{1}{\sqrt{2}}\right)^x$

$3 \cdot 25^x - 28 \cdot 5^x \cdot \left(\frac{1}{\sqrt{2}}\right)^x + 57 \cdot \left(\left(\frac{1}{\sqrt{2}}\right)^x\right)^2 > 0 \quad \Big/ : \left(\left(\frac{1}{\sqrt{2}}\right)^x\right)^2$

$$3\cdot\left(\frac{5}{\frac{1}{\sqrt{2}}}\right)^{2x} - 28\cdot\left(\frac{5}{\frac{1}{\sqrt{2}}}\right)^{x} + 57 > 0$$

Пусть $(5\sqrt{2})^x = y$

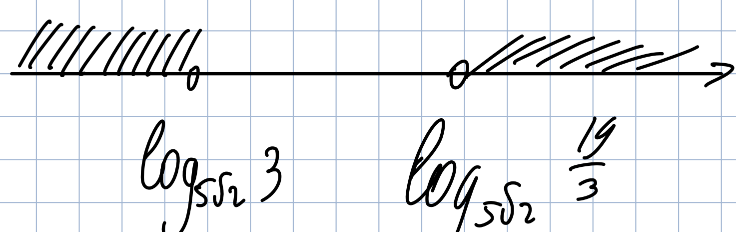
$$3y^2 - 28y + 57 > 0$$

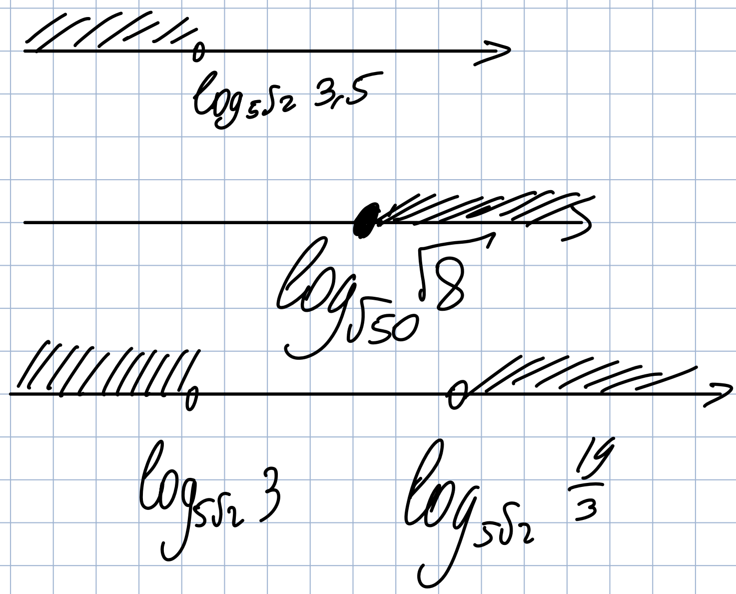
$y_1 = 3;\ y_2 = 19$

$$\left[\begin{array}{l}(5\sqrt{2})^x < 3\\ (5\sqrt{2})^x > \frac{19}{3}\end{array}\right.$$

$$\left[\begin{array}{l}(5\sqrt{2})^x < (5\sqrt{2})^{\log_{5\sqrt{2}} 3}\\ (5\sqrt{2})^x > (5\sqrt{2})^{\log_{5\sqrt{2}} \frac{19}{3}}\end{array}\right.$$

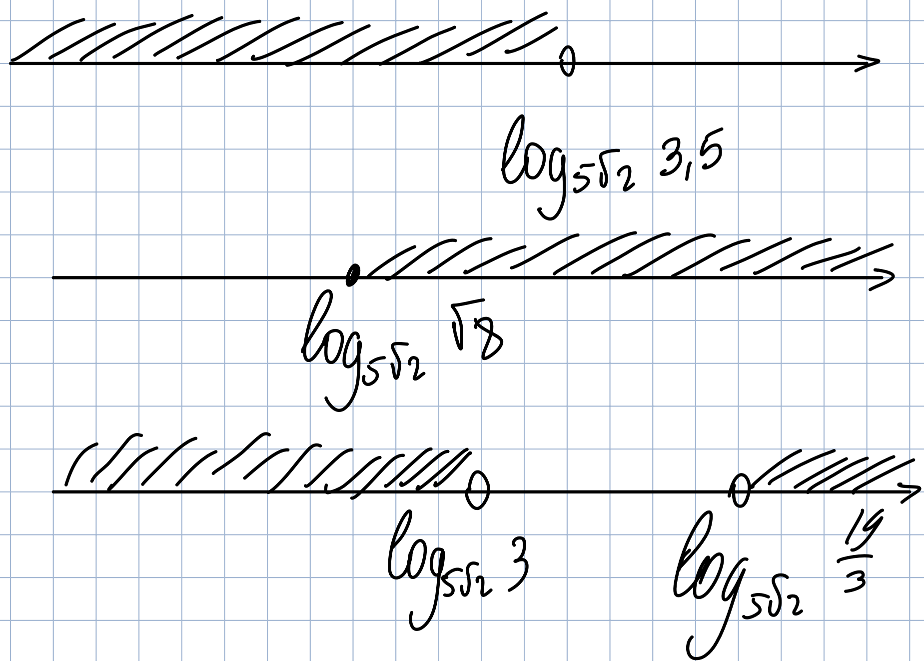
$$\left[\begin{array}{l}x < \log_{5\sqrt{2}} 3\\ x > \log_{5\sqrt{2}} \frac{19}{3}\end{array}\right.$$





$$50 = \left(50^{\frac{1}{2}}\right)^2$$

$$\log_{\sqrt{50}} \sqrt{8}$$



29 $$\frac{\sqrt{42+x-x^2}}{2x+7} \geq \frac{\sqrt{42+x-x^2}}{x+5}$$

ОДЗ

1)

2)

3)

$$\frac{\sqrt{42+x-x^2}\,(x+5-2x-7)}{(2x+7)(x+5)} \geq 0$$

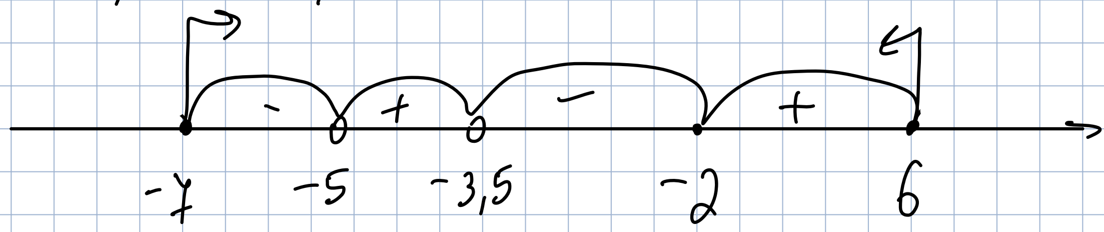
$$\frac{\sqrt{42+x-x^2}\,(x+2)}{(2x+7)(x+5)} \leq 0$$

$\sqrt{42+x-x^2}\cdot(x+2)=0$ $\quad$ $(2x+7)(x+5)\neq 0$

$\sqrt{42+x-x^2}=0$ $\quad$ $x+2=0$ $\quad$ $x\neq -3{,}5;\ x\neq -5$

$42+x-x^2=0$

$x=6;\ x=-7;\ x=-2$



30

$$3^{\log_2 x^2} + 2\cdot|x|^{\log_2 9} \le 3\cdot\left(\frac{1}{3}\right)^{\log_{0,5} 2x+3}$$

$$3^{\log_2 x^2} + 2\cdot 9^{\log_2|x|} \le 3^{1+\log_2(2x+3)}$$

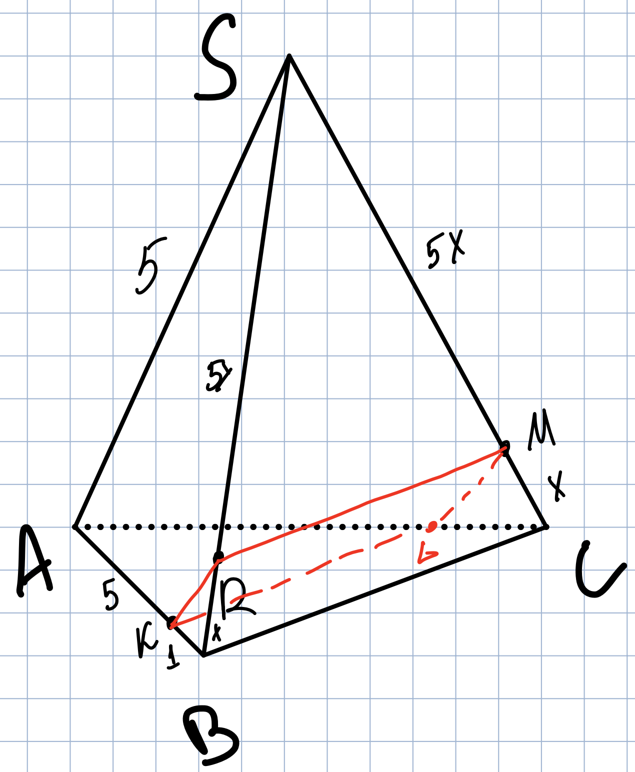
$$\downarrow$$

$$2\cdot 3^{\log_2 x^2}$$

$$3^{1+\log_2 x^2} \le 3^{1+\log_2(2x+3)}$$

13

Дано:



1) $\alpha \cap MABS = K \Rightarrow \alpha \cap ABS = a \; (K \in a)$

$a \parallel AS \Rightarrow$ пусть $BR : RS = BK : KA = 1:5$

$KR = a.$