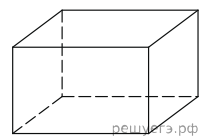
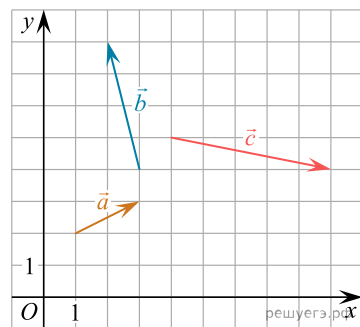


$$(\vec{a}-\vec{b})\cdot\vec{c}.$$

$$\vec{a},\vec{b},\vec{c}.$$

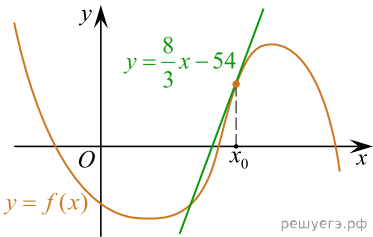


$$\frac{1}{3}x^2=16\frac{1}{3}.$$

$$(4a^2-9)\cdot\left(\frac{1}{2a-3}-\frac{1}{2a+3}\right).$$

$$y=f(x)$$

$$g(x)=(f'(x)-0,5)\cdot 6$$



$$\eta=\frac{T_1-T_2}{T_1}\cdot 100\%,\qquad T_1$$

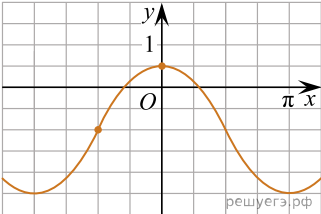
$$T_2=340$$

$$T_1$$

$$T_2$$

$$15\%,$$

$$f\left(x \right)=a\cos x+b.$$



$$y=x^3-3x^2+2.$$

$$\log_3-4\cos^2x(9-16\cos^4x)=2+\frac{1}{\log_2(3-4\cos^2x)}\cdot\left[-\frac{\pi}{3};\frac{2\pi}{3}\right].$$

$$AE=DF=4$$

$$2^{2x} - \sqrt{3} \cos x - \sin 2x = 4^x.$$

$$\sin x = -\frac{\sqrt{3}}{2}.$$

$$\sin 2x = 2 \cos x \sin x,$$

$$\begin{aligned}\sin x &= -\frac{\sqrt{3}}{2} \\ \cos x &= 0\end{aligned}$$

$$x = -\frac{\pi}{3} + 2\pi n$$

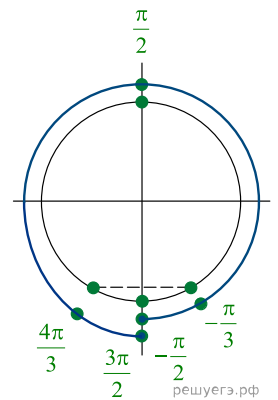
$$x = \frac{\pi}{2} + \pi n, \quad n \in \mathbb{Z}.$$

$$\cos x(-2\sin x - \sqrt{3}) = 0,$$

$$x = -\frac{2\pi}{3} + 2\pi n, \quad n \in \mathbb{Z}.$$

$$\cos x = 0$$

$$\left[-\frac{\pi}{2}; \frac{3\pi}{2}\right].$$

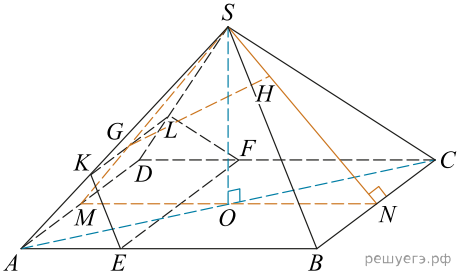


$$\left\{ -\frac{\pi}{3} + 2\pi n; -\frac{2\pi}{3} + 2\pi n; \frac{\pi}{2} + \pi n : n \in \mathbb{Z} \right\}; \quad -\frac{\pi}{2}; -\frac{\pi}{3}; \frac{\pi}{2}; \frac{4\pi}{3}; \frac{3\pi}{2}.$$

$$AO=\frac{1}{2}AC=\frac{\sqrt{2}}{2}AB=6\sqrt{2},$$

$$AS=\sqrt{AO^2+SO^2}=9.$$

$$\frac{AK}{AS}=\frac{1}{3}=\frac{AE}{AB},$$



$$\frac{SG}{SM}=\frac{SK}{SA}=\frac{2}{3},$$

$$GH=\frac{2}{3}d(M,\,SH),\qquad d(M,\,SN)$$

$$MN=AB=12,$$

$$ON=\frac{1}{2}MN=6,$$

$$SN=\sqrt{SO^2+ON^2}=3\sqrt{5}.$$

$$d(M,\,SN)\cdot SN=SO\cdot MN\Leftrightarrow d(M,\,SN)=\frac{SO\cdot MN}{SN}=\frac{12\sqrt{5}}{5},$$

$$GH=\frac{8\sqrt{5}}{5}.$$

$$\frac{8\sqrt{5}}{5}.$$

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$$2^{\log_2^2(x+1)} = 2^{\log_2(x+1) \cdot \log_2(x+1)} = \left(2^{\log_2(x+1)}\right)^{\log_2(x+1)} = (x+1)^{\log_2(x+1)},$$

$$(x+1)^{\log_2(x+1)^2} = (x+1)^{2\log_2(x+1)} = \left((x+1)^{\log_2(x+1)}\right)^2,$$

$$t = (x+1)^{\log_2(x+1)}.$$

$$\begin{aligned} 3t^2 - 48t \geq 2t - 32 &\Leftrightarrow 3t(t-16) \geq 2(t-16) \Leftrightarrow (t-16)(3t-2) \geq 0 \Leftrightarrow \begin{cases} t \leq \frac{2}{3}, \\ t \geq 16. \end{cases} \\ &\Leftrightarrow (t-16)(3t-2) \geq 0 \Leftrightarrow \begin{cases} t \leq \frac{2}{3}, \\ t \geq 16. \end{cases} \end{aligned}$$

$$\begin{aligned} \begin{cases} (x+1)^{\log_2(x+1)} \leq \frac{2}{3}, \\ (x+1)^{\log_2(x+1)} \geq 16 \end{cases} &\Leftrightarrow \begin{cases} \log_2(x+1)^{\log_2(x+1)} \leq \log_2 \frac{2}{3}, \\ \log_2(x+1)^{\log_2(x+1)} \geq \log_2 16 \end{cases} \Leftrightarrow \begin{cases} \log_2^2(x+1) \leq \log_2 \frac{2}{3} \quad (*), \\ \log_2^2(x+1) \geq 4. \end{cases} \\ &\begin{cases} (x+1)^{\log_2(x+1)} \leq \frac{2}{3}, \\ (x+1)^{\log_2(x+1)} \geq 16 \end{cases} \Leftrightarrow \begin{cases} \log_2(x+1)^{\log_2(x+1)} \leq \log_2 \frac{2}{3}, \\ \log_2(x+1)^{\log_2(x+1)} \geq \log_2 16 \end{cases} \\ &\Leftrightarrow \begin{cases} \log_2^2(x+1) \leq \log_2 \frac{2}{3} \quad (*), \\ \log_2^2(x+1) \geq 4. \end{cases} \begin{cases} (x+1)^{\log_2(x+1)} \leq \frac{2}{3}, \\ (x+1)^{\log_2(x+1)} \geq 16 \end{cases} \\ &\Leftrightarrow \begin{cases} \log_2(x+1)^{\log_2(x+1)} \leq \log_2 \frac{2}{3}, \\ \log_2(x+1)^{\log_2(x+1)} \geq \log_2 16 \end{cases} \\ &\Leftrightarrow \begin{cases} \log_2^2(x+1) \leq \log_2 \frac{2}{3} \quad (*), \\ \log_2^2(x+1) \geq 4. \end{cases} \end{aligned}$$

$$\log_2^2(x+1) \geq 4 \Leftrightarrow (\log_2(x+1) + 2)(\log_2(x+1) - 2) \geq 0 \Leftrightarrow$$

$$\Leftrightarrow \begin{cases} \log_2(x+1) \leq -2, \\ \log_2(x+1) \geq 2 \end{cases} \Leftrightarrow \begin{cases} 0 < x+1 \leq \frac{1}{4}, \\ x+1 \geq 4 \end{cases} \Leftrightarrow \begin{cases} -1 < x \leq -\frac{3}{4}, \\ x \geq 3. \end{cases}$$

$$\left(-1; -\frac{3}{4}\right] \cup [3; +\infty).$$

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	$3 + 12 \cdot 0,2$	
	$3 + 9 \cdot 0,2$	
	$3 + 6 \cdot 0,1$	
	$3 + 3 \cdot 0,1$	

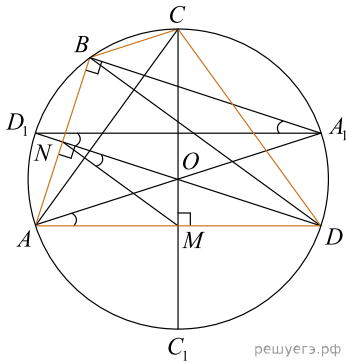
$$3 \cdot 4 + 0,2 \cdot (12 + 9) + 0,1 \cdot (6 + 3) = 12 + 0,2 \cdot 21 + 0,1 \cdot 9 = 12 + 4,2 + 0,9 = 17,1 \text{ млн руб.}$$

$$\angle BA_1D_1 = \angle A_1D_1D$$

$$\angle BA_1D_1 = \angle A_1D_1D = \angle A_1AD.$$

$$\angle DNM = \angle MNO = \angle OAM = \angle A_1AD.$$

$$\angle DNM = \angle BA_1D_1.$$



$$\angle CDB = \alpha, \angle ADB = 2\alpha.$$

$$\angle BAD = \angle ABD = \angle ACD = 180^\circ - 2\angle ADC = 180^\circ - 6\alpha.$$

$$\angle BAD = \frac{1}{2}(180^\circ - \angle ADB) = 90^\circ - \alpha,$$

$$180^\circ - 6\alpha = 90^\circ - \alpha$$

$$\alpha = 18^\circ.$$

$$\begin{aligned} \angle ADC = 3\alpha = 54^\circ, \angle ABC = 180^\circ - \angle ADC = 126^\circ, \angle BAD = \\ = 90^\circ - \alpha = 72^\circ, \angle BCD = 180^\circ - \angle BAD = 108^\circ. \end{aligned}$$

$$\sqrt{a \sin x + \cos x} = \sqrt{a \cos x + \sin x} \Leftrightarrow \begin{cases} a \sin x + \cos x = a \cos x + \sin x, \\ a \sin x + \cos x \geq 0. \end{cases}$$

$$\begin{aligned} a \sin x + \cos x = a \cos x + \sin x &\Leftrightarrow (a-1) \sin x - (a-1) \cos x = 0 \Leftrightarrow (a-1)(\sin x - \cos x) = 0. \quad a \sin x + \cos x = a \cos x + \sin x \Leftrightarrow \\ &\Leftrightarrow (a-1) \sin x - (a-1) \cos x = 0 \Leftrightarrow (a-1)(\sin x - \cos x) = 0. \quad a \sin x + \cos x = a \cos x + \sin x \Leftrightarrow \\ &\Leftrightarrow (a-1) \sin x - (a-1) \cos x = 0 \Leftrightarrow \\ &\Leftrightarrow (a-1)(\sin x - \cos x) = 0. \end{aligned}$$

$$a = 1,$$

$$\sin x + \cos x \geq 0 \Leftrightarrow \sin\left(x + \frac{\pi}{4}\right) \geq 0 \Leftrightarrow -\frac{\pi}{4} + 2\pi k \leq x \leq \frac{3\pi}{4} + 2\pi k$$

$$\left[\frac{3\pi}{4}; \frac{7\pi}{4}\right] \quad \frac{3\pi}{4} \quad \frac{7\pi}{4}.$$

$$a \neq 1,$$

$$\sin x - \cos x = 0 \Leftrightarrow \operatorname{tg} x = 1 \Leftrightarrow \begin{cases} x = \frac{\pi}{4} + 2\pi n, \\ x = \frac{5\pi}{4} + 2\pi n, \end{cases} \quad n \in \mathbb{Z}.$$

$$\left[\frac{3\pi}{4}; \frac{7\pi}{4}\right].$$

$$a \leq -1. \quad \left[\frac{3\pi}{4}; \frac{7\pi}{4}\right] \quad \frac{5\pi}{4}, \quad -a\frac{\sqrt{2}}{2} - \frac{\sqrt{2}}{2} \geq 0,$$

$$a \leq -1, \quad a = 1.$$

$$n\leqslant 99$$

$$n\geqslant 100$$

$$\left[\frac{m}{p^2}\right]$$

$$1\leqslant m<100$$

$$\left[\frac{m}{p}\right]$$

$$5^{\left[\frac{m}{5}\right]+\left[\frac{m}{5^2}\right]}2^{\left[\frac{m}{2}\right]+\left[\frac{m}{2^2}\right]},\qquad 5^{\left[\frac{m}{5}\right]+\left[\frac{m}{5^2}\right]+1}.$$

$$1\leqslant 100-n<100,$$

$$\left[\frac{n}{5}\right]+\left[\frac{n}{5^2}\right]\leqslant \left[\frac{n}{2}\right]+\left[\frac{n}{2^2}\right],$$

$$\left[\frac{100-n}{5}\right]+\left[\frac{100-n}{5^2}\right]\leqslant \left[\frac{100-n}{2}\right]+\left[\frac{100-n}{2^2}\right]?$$

$$k=\left[\frac{n}{5}\right]+\left[\frac{n}{5^2}\right]+\left[\frac{100-n}{5}\right]+\left[\frac{100-n}{5^2}\right]$$

$$\left[\frac{n}{5}\right]+\left[\frac{100-n}{5}\right]=\left[\frac{n}{5}\right]+\left[20-\frac{n}{5}\right]$$

$$\left[\frac{n}{5^2}\right]+\left[\frac{100-n}{5^2}\right]=\left[\frac{n}{5^2}\right]+\left[4-\frac{n}{5^2}\right]$$

$$k=\left[\frac{n}{5}\right]+\left[\frac{100-n}{5}\right]+\left[\frac{n}{5^2}\right]+\left[\frac{100-n}{5^2}\right]$$

$$\left\lfloor \frac{n}{5} \right\rfloor \qquad \qquad \qquad \left\lfloor \frac{n}{25} \right\rfloor$$

$$\left\lfloor \frac{n}{5} \right\rfloor - \left\lfloor \frac{n}{25} \right\rfloor + 2 \cdot \left\lfloor \frac{n}{25} \right\rfloor = \left\lfloor \frac{n}{5} \right\rfloor + \left\lfloor \frac{n}{25} \right\rfloor$$

$$\begin{aligned} \left\lfloor \frac{n}{5} \right\rfloor + \left\lfloor \frac{100-n}{5} \right\rfloor + \left\lfloor \frac{n}{25} \right\rfloor + \left\lfloor \frac{100-n}{25} \right\rfloor &= \left\lfloor \frac{n}{5} \right\rfloor + \left\lfloor 20 - \frac{n}{5} \right\rfloor + \left\lfloor \frac{n}{25} \right\rfloor + \left\lfloor 4 - \frac{n}{25} \right\rfloor \\ \left\lfloor \frac{n}{5} \right\rfloor + \left\lfloor \frac{100-n}{5} \right\rfloor + \left\lfloor \frac{n}{25} \right\rfloor + \left\lfloor \frac{100-n}{25} \right\rfloor &= \left\lfloor \frac{n}{5} \right\rfloor + \\ &\quad + \left\lfloor 20 - \frac{n}{5} \right\rfloor + \left\lfloor \frac{n}{25} \right\rfloor + \left\lfloor 4 - \frac{n}{25} \right\rfloor \end{aligned}$$

$$\left\lfloor \frac{n}{5} \right\rfloor + \left\lfloor 20 - \frac{n}{5} \right\rfloor = 19 \qquad \qquad \qquad \left\lfloor \frac{n}{25} \right\rfloor + \left\lfloor 4 - \frac{n}{25} \right\rfloor = 3$$
