

а) $2∙cos^{2}\left(x\right)-3∙\cos(x+1=0)$; $\left[\begin{array}{c}\cos(x=1)\\\cos(x=\frac{1}{2})\end{array}\right.$; $\left[\begin{array}{c}x=2πk,k\in Z\\x=\pm \frac{π}{3}+2πk,k\in Z\end{array}\right.$

б)

A:$-4π+\frac{π}{3}=-\frac{11}{3}π$

B: $-4π$



а) $EF∪\left(A\_{1}B\_{1}\right)=L;LT∩\left(A\_{1}D\_{1}\right)=X$

$∆EA\_{1}L\~∆FB\_{1}L:$ $\frac{A\_{1}L}{B\_{1}L}=\frac{EA\_{1}}{FB\_{1}}=\frac{\frac{6}{7}}{\frac{3}{7}}=2$;

$∆XA\_{1}L\~∆TB\_{1}L:$ $\frac{A\_{1}L}{B\_{1}L}=\frac{XA\_{1}}{TB\_{1}}=2;XA\_{1}=D\_{1}A\_{1}$;

$X=D\_{1}$ .

б) $\left\{\begin{array}{c}B\_{1}K⊥LT\\FB\_{1}⊥LT\end{array}⇒∠B\_{1}KF=\left(A\_{1}B\_{1}C\_{1}\right)\^(EFT)\right.$;

$B\_{1}F=\frac{3}{7}∙BB\_{1}=15; B\_{1}T=15; B\_{1}L=4\sqrt{2}$; $B\_{1}K=\frac{LB\_{1}∙B\_{1}T}{LT}=\frac{15∙4\sqrt{2}}{\sqrt{225+32}}=\frac{60\sqrt{2}}{\sqrt{257}}$; $tg∠B\_{1}KF=\frac{B\_{1}F}{B\_{1}K}=\frac{\sqrt{257}}{4\sqrt{2}} $; $\cos(∠B\_{1}KF=\frac{1}{\sqrt{1+\frac{257}{32}}}=\frac{4\sqrt{2}}{17})$;

$$S\_{EFTD\_{1}}=\frac{S\_{D\_{1}TB\_{1}A\_{1}}}{cos∠B\_{1}KF}=\frac{\left(15+30\right)2\sqrt{2}∙17}{4\sqrt{2}}=382,5$$



$\frac{log\_{1-2x}\left(x+1\right)+log\_{1-2x}\left(2x-1\right)^{2}}{log\_{x+1}(1-2x)}\leq -1;$ $\left\{\begin{array}{c}log\_{1-2x}^{2}\left(x+1\right)+2∙log\_{1-2x}\left(x+1\right)+1\leq 0\\x\ne 0\end{array}\right.$; $\left\{\begin{array}{c}log\_{1-2x}\left(x+1\right)=-1\\x\ne 0\end{array}\right.$; $\left\{\begin{array}{c}x+1=\frac{1}{1-2x}\\x>-1\\x<0,5\\x\ne 0;\end{array}\right.$; $x=-0,5$



а) $\left\{\begin{array}{c}∠BTC-вписанный в окружность\\∠BOC-центральный\end{array}\right.⇒∠BOC=2∠BTC$

б) $\left\{\begin{array}{c}DH=2r-CD=2r-25\\AG=2r-AB=2r-1\end{array}\right.$; $\left\{\begin{array}{c}DT^{2}=DH∙DC=\left(2r-25\right)25\\TA^{2}=2r-1\end{array}\right.$

$$\left\{\begin{array}{c}TB^{2}=AT^{2}+AB^{2}=2r\\TC^{2}=DT^{2}+DC^{2}=\left(2r-25\right)25+625=50r\end{array}\right.$$

$BC=2r∙\sin(∠BTC)$ ; $S\_{BTC}=\frac{1}{2}BC∙h=\frac{1}{2}BT∙TC∙\sin(∠BTC)$;

$h∙r∙\sin(∠BTC)=\sqrt{2r}∙\sqrt{50r}∙\sin(∠BTC);h=5$.



$\frac{1,2}{24}=0,05$ – ежемесячное уменьшение долга.

$$\left\{\begin{array}{c}0,05=1,2-\left(1,2∙1,02-X\_{1}\right); X\_{1}=0,074\\0,05=1,15-\left(1,15∙1,02-X\_{2}\right); X\_{2}=0,073\\…\end{array}\right.$$

За 12 месяцев: $X=\frac{2∙0,074-0,001∙11}{2}∙12=0,882$



$\frac{x}{y}=t; $ $3t^{2}-10t+3=0; \left[\begin{array}{c}t=3\\t=\frac{1}{3}\end{array}; \right.$

$\left\{\begin{array}{c}\left[\begin{array}{c}y=3x\\y=\frac{1}{3}x\end{array}\right.\\\left(x-a\right)^{2}+\left(y-a\right)^{2}=\left(\sqrt{10}a^{2}\right)^{2}\end{array}\right.$;

$ρ\left(o;l\_{1}\right)=R$; где $O\left(a;a\right);R=\sqrt{10}a^{2}$

$\frac{\left|3∙a-a\right|}{\sqrt{9+1}}=\sqrt{10}a^{2}$; $\left|2a\right|=10a^{2}$; $\left[\begin{array}{c}a=\frac{1}{5}\\a=-\frac{1}{5}\\a=0-1 реш\end{array}\right.$

Ответ: $a=\pm \frac{1}{5}$



а) $4a\_{5}=7a\_{4};4a\_{4}+4a\_{3}=7a\_{4};4a\_{3}=3a\_{4};4a\_{3}=3a\_{3}+3a\_{2}; a\_{3}=3a\_{2};2a\_{2}=a\_{1}$;

При $a\_{2}=1; a\_{1}=2$ – может.

б) $5a\_{5}=7a\_{4};5a\_{4}+5a\_{3}=7a\_{4};5a\_{3}=2a\_{4};5a\_{3}=2a\_{3}+2a\_{2}; 3a\_{3}=2a\_{2};3a\_{2}=-a\_{1}$ – противоречие(числа положительные).Не может.

в) Для n=4: $24a\_{5}=40a\_{4};3a\_{5}=5a\_{4};2a\_{4}=3a\_{3}; a\_{3}=2a\_{2}; a\_{2}=a\_{1}-возможно $

При n=5: $30a\_{6}=49a\_{5}; $Коэффициенты: (19,30),(11,19),(8,11),(3,8) – возможно, например, если $a\_{1}=3; a\_{2}=8$

При $n\geq 6$ : Коэффициенты: $\left(n^{2}+24-6n;6n\right),\left(12n-24-n^{2};n^{2}+24-6n\right);\left(2n^{2}+24-18n;12n-24-n^{2}\right);\left(30n-48-3n^{2};2n^{2}+24-18n\right);\left(5n^{2}-38n+76; 30n-48-3n^{2}\right)$;

Уже при n=6 $30n-48-3n^{2}<0$-противоречие(числа положительные)