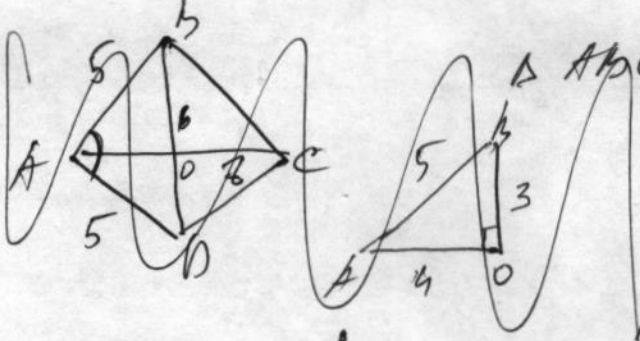


$\triangle ABO$ – прямоугольный $\Rightarrow$

по т. Пифагора: $AB = \sqrt{9+16} = 5$

$AB = BC = CD = AD$ – т.к. ромб

по т. cos:

$BD^2 = AB^2 + AD^2 - 2AB \cdot AD \cos\alpha \Rightarrow$

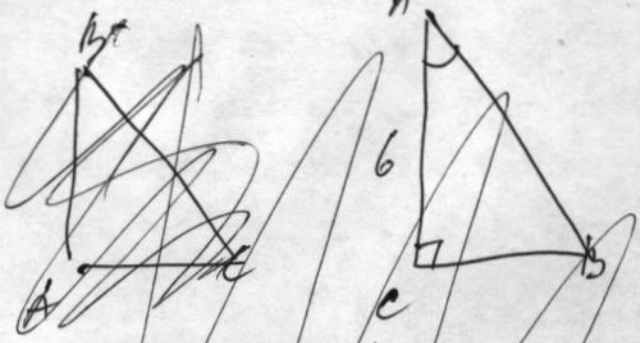
$36 = 2 \cdot 25 - 2 \cdot 25 \cos\alpha$

$50\cos\alpha = 14$

$\cos\alpha = \frac{7}{25}$

$\angle A = \angle C = \arccos\frac{7}{25}$.

$\angle B = \angle D = 180 - \arccos\frac{7}{25}$.

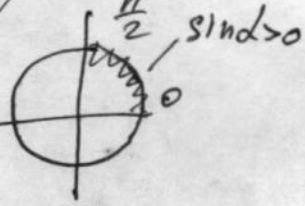


$\sin A = 0{,}8 = \frac{4}{5}$

$\cos A = \sqrt{1-\sin^2 A} = \sqrt{1-\frac{16}{25}} = \sqrt{\frac{9}{25}} = \frac{3}{5}$

$\cos A = \frac{AC}{AB} \Rightarrow AB = \frac{AC}{\cos A} = \frac{6 \cdot 5}{3} = 10$ Ответ: 10

Ответ: $-\frac{48+25\sqrt{3}}{39}$



$\cos\alpha = \frac{3}{5}$

$\operatorname{tg}(\alpha+\frac{\pi}{3}) = \frac{\operatorname{tg}\alpha + \operatorname{tg}\frac{\pi}{3}}{1 - \operatorname{tg}\alpha \cdot \operatorname{tg}\frac{\pi}{3}} = \frac{\operatorname{tg}\alpha + \sqrt{3}}{1 - \operatorname{tg}\alpha \cdot \sqrt{3}}$

$\sin\alpha = \sqrt{1-\cos^2\alpha} = \sqrt{1-\frac{9}{25}} = \sqrt{\frac{16}{25}} = \frac{4}{5} \Rightarrow \operatorname{tg}\alpha = \frac{\sin\alpha}{\cos\alpha} = \frac{4}{5} \cdot 3 = \frac{4}{3}$.

$\operatorname{tg}(\alpha+\frac{\pi}{3}) = \frac{\frac{4}{3}+\sqrt{3}}{1-\frac{4}{3}\cdot\sqrt{3}} = \frac{(4+3\sqrt{3})\cdot 3}{3\cdot(3-4\sqrt{3})} \cdot \frac{(3+4\sqrt{3})}{(3+4\sqrt{3})} = \frac{(3\sqrt{3}+4)}{\sqrt{3}(\sqrt{3}-4)} = \frac{12+16\sqrt{3}+9\sqrt{3}+36}{-39} =$

$9-16\cdot 3 = -39$

$= -\frac{48+25\sqrt{3}}{39}$

$= \frac{2\sqrt{3}\cdot 4}{5\cdot 5} = \frac{2\sqrt{3}}{25}$

$\sin(\angle A + \angle BAO) = 2\sin\angle BAO \cdot \cos\angle BAO =$

$\cos\angle BAO = \frac{3}{5}$

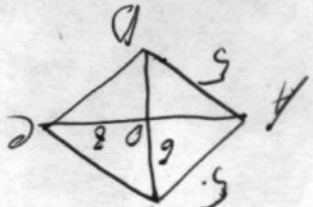
$\sin\angle BAO = \frac{4}{5}$

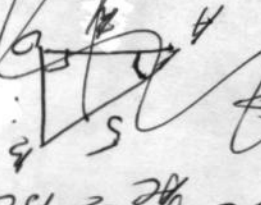
$\cos\angle BAO = \frac{4}{5}$

$\sin\angle BAO = \frac{3}{5}$

$\angle A = \angle AC = \alpha < BAO$

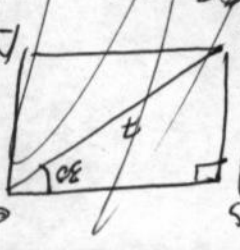
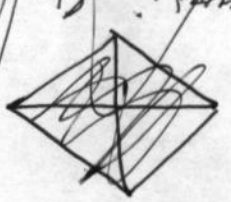
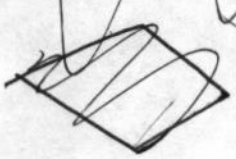
$\angle B = \angle D = \alpha < BAO$





$AB = \sqrt{9+16} = 5$

$OB = \frac{3}{4}$

$\triangle ABC$ – прямоугольный. $\sin 30 = \frac{BC}{AC} \Rightarrow AB = AC \sin 30 = 9 \cdot \frac{1}{2} = 3{,}5$.

$\cos 30 = \frac{AC}{BC} \Rightarrow BC = AC \cos 30 = \frac{9\sqrt{3}}{2} = 3{,}5\sqrt{3}$