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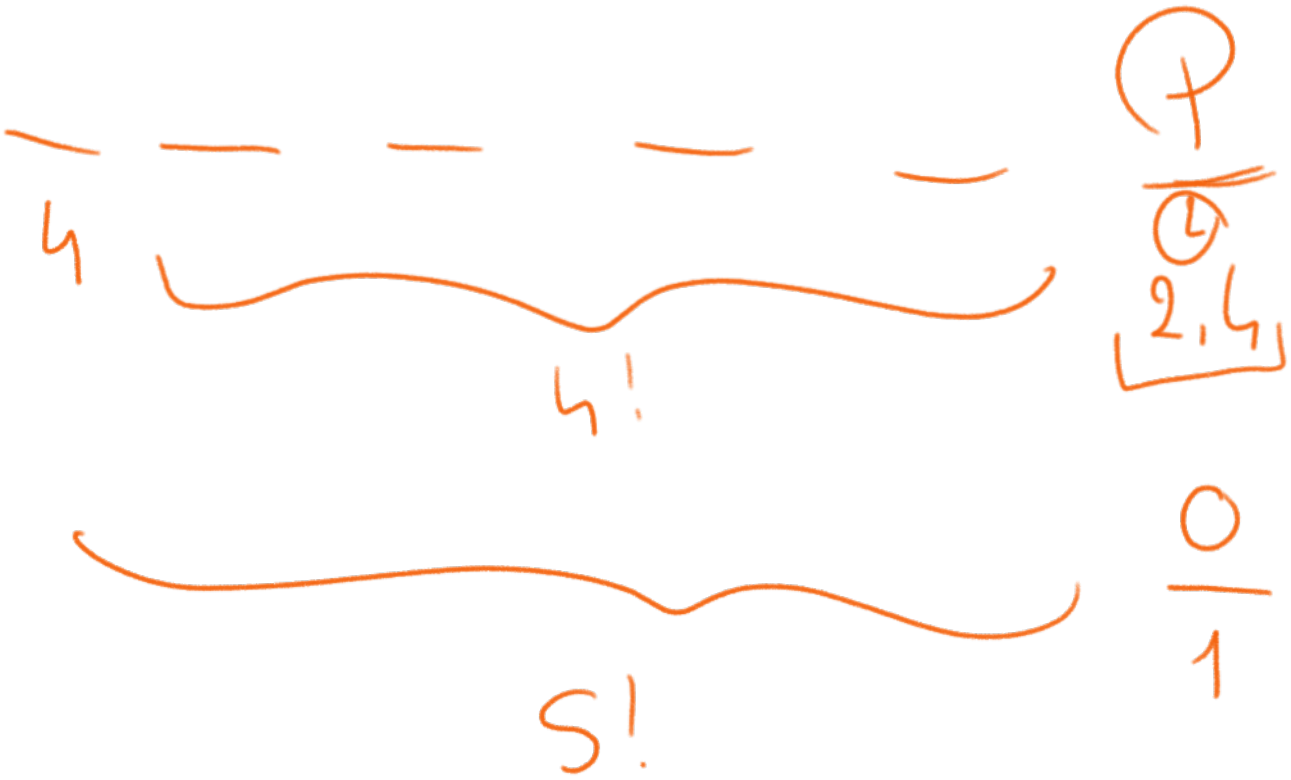

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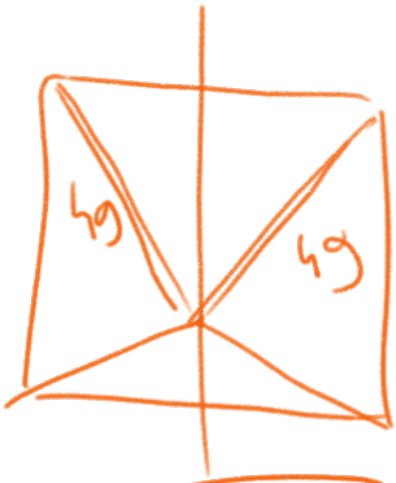

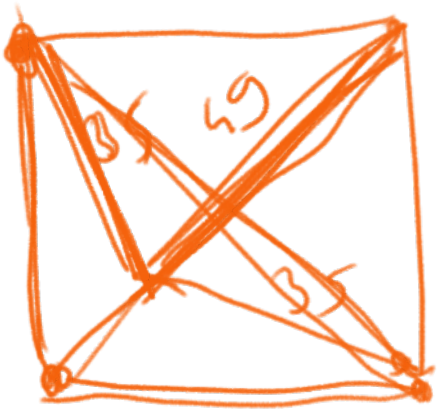

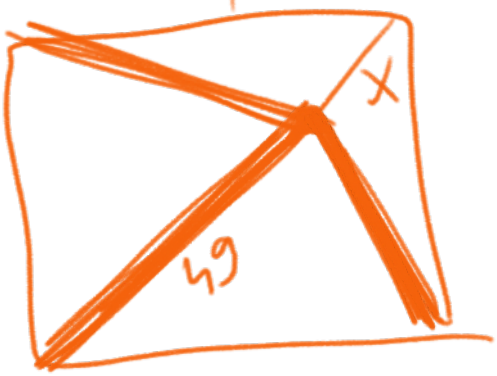

A

4. 2023 I/18

$$\sqrt{\frac{a^2+b^2+c^2}{3}} \geq \frac{a+b+c}{3}$$

$$\left(\frac{a^2+b^2+c^2}{3}\right)^{\frac{1}{2}} \geq \frac{a+b+c}{3}$$

$$\frac{a+b+c}{3} > 0$$

$$a+b+c > 0$$

$$\frac{a^2+b^2+c^2}{3} \geq \frac{(a+b+c)^2}{9}$$

$$\frac{3a^2+3b^2+3c^2-(a+b+c)^2}{9} \geq 0$$

$$2a^2+2b^2+2c^2-2ab-2ac-2bc \geq 0$$

$$2(a^2+b^2+c^2-ab-bc-ac) \geq 0$$

$$2(a+b+c)^2 - 6ab-6bc-6ac \geq 0$$

$$2a^2+2b^2+2b^2-2ab-2ac-2bc \geq 0$$

$$(a-b)^2+a^2+b^2-2ac+2c^2-2bc \geq 0$$

$$(a-b)^2+(a-c)^2+(b-c)^2 \geq 0$$

$\geq 0 \quad \geq 0 \quad \geq 0$

$$(a+b+c)(a+b+c) =$$

$$= a^2+ab+ac+ab+b^2+bc+ac+bc+c^2$$

$$a^2+2ab+2ac+2bc+c^2+b^2$$

$$\frac{a+b+c}{3} < 0$$

$$a+b+c < 0$$

$$\sqrt{\frac{a^2+b^2+c^2}{3}} \geq 0$$

$$\Downarrow$$

$$\sqrt{\frac{a^2+b^2+c^2}{3}} \geq \frac{a+b+c}{3}$$

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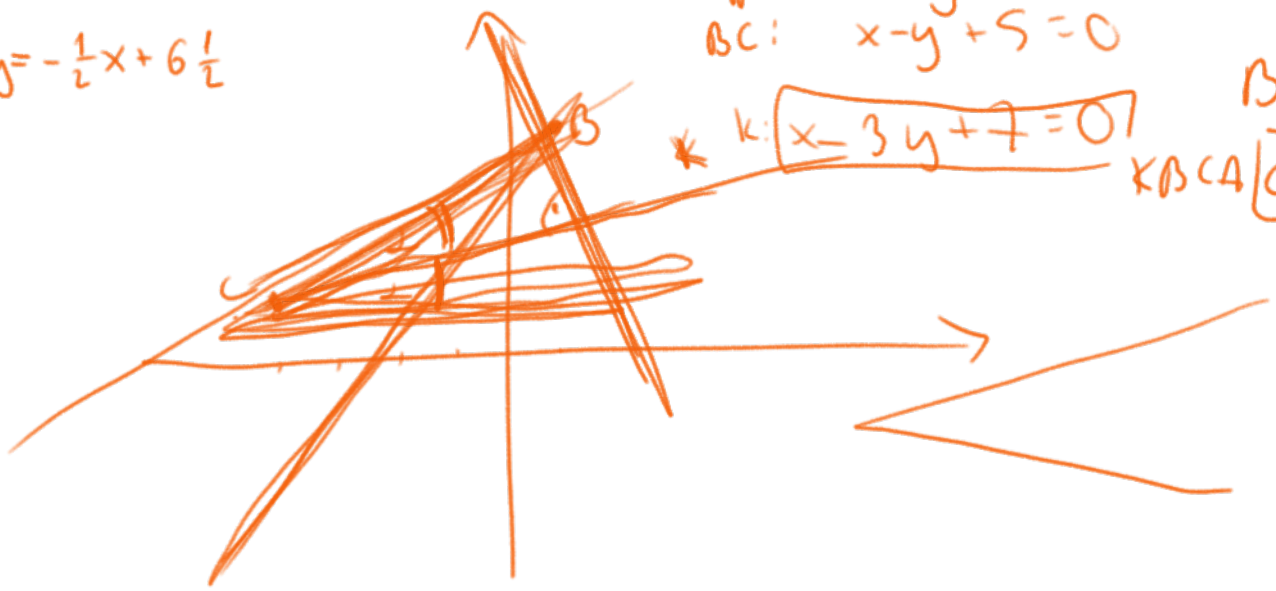
$y = -\frac{1}{2}x + 6\frac{1}{2}$



AB: $x + 2y - 13 = 0$

BC: $x - y + 5 = 0$

$B(1, 6)$

k: $x - 3y + 7 = 0$

$k \perp BC \quad A$

$C(-4, 1)$

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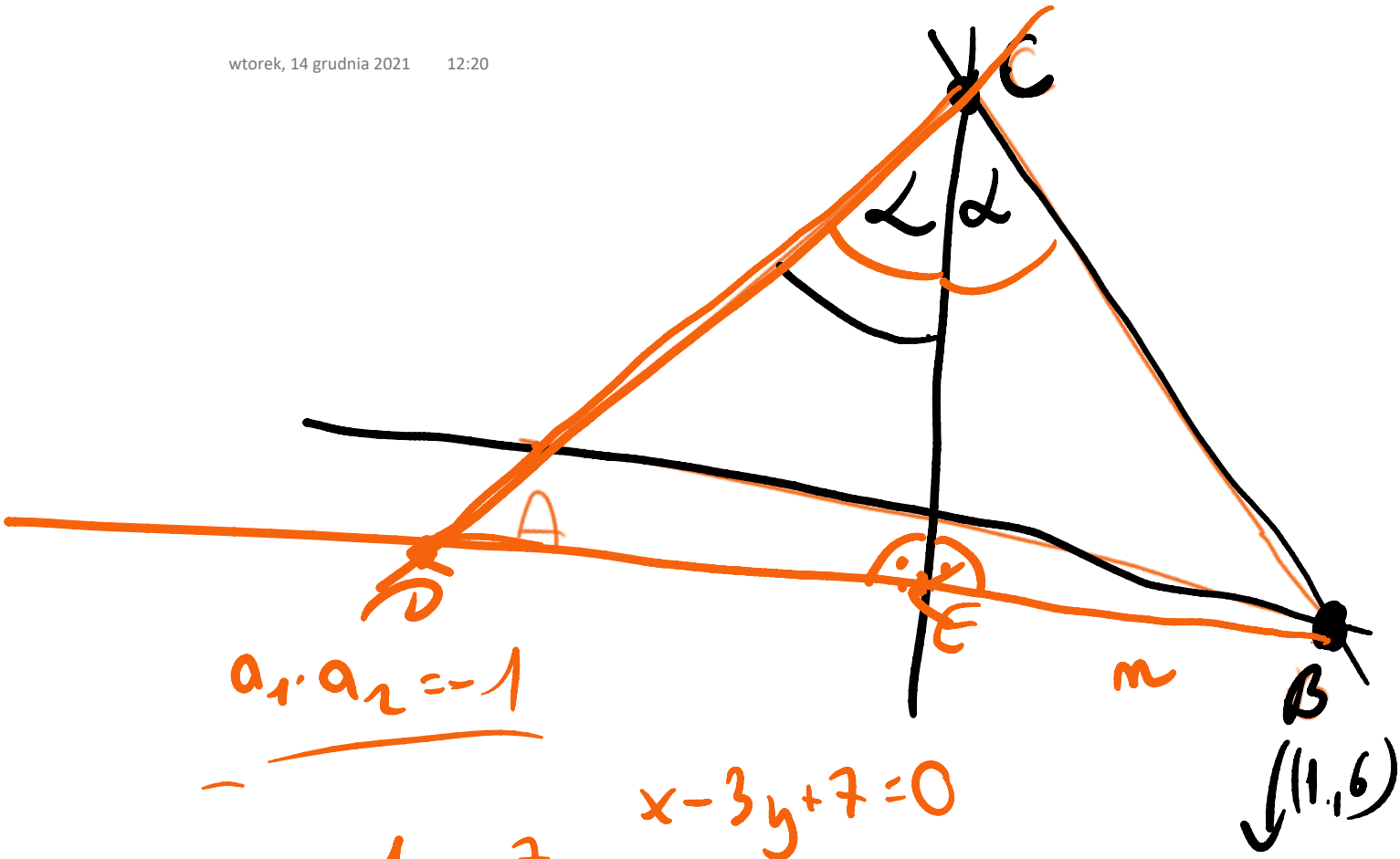

$a_1 \cdot a_2 = -1$

$x - 3y + 7 = 0$

$y = \frac{1}{3}x + \frac{7}{3}$

$y = a(x-p)+q$

$m: y = -3(x-1)+6$

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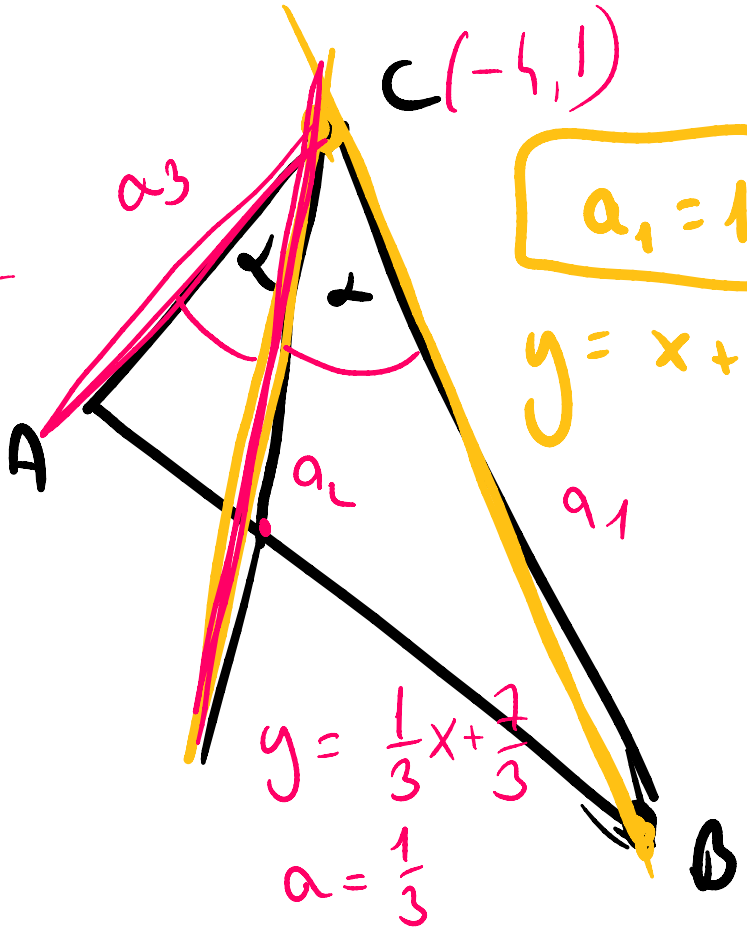
$y = a_3(x+4)+1$

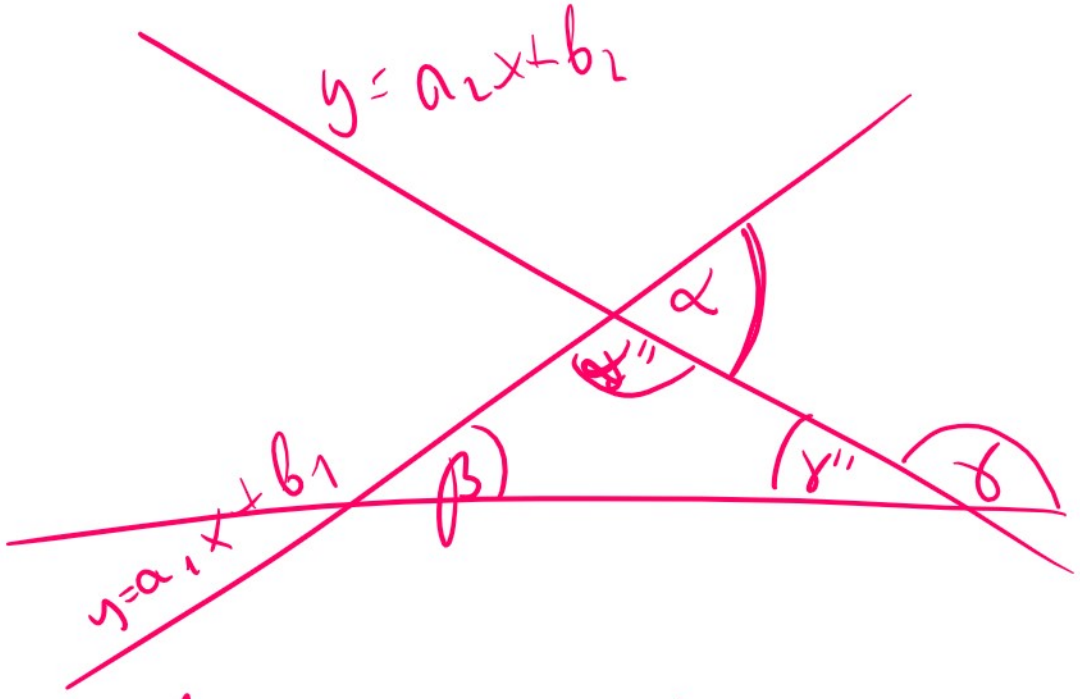


$$\operatorname{tg}\alpha = \left| \frac{a_1 - a_2}{1 + a_1 a_2} \right| = \left| \frac{a_3 - a_2}{1 + a_3 a_2} \right|$$

$$\operatorname{tg}(\alpha+\beta) = \frac{\operatorname{tg}\alpha + \operatorname{tg}\beta}{1 - \operatorname{tg}\alpha \operatorname{tg}\beta}$$

$a = \operatorname{tg}\alpha$

$y = ax + b$

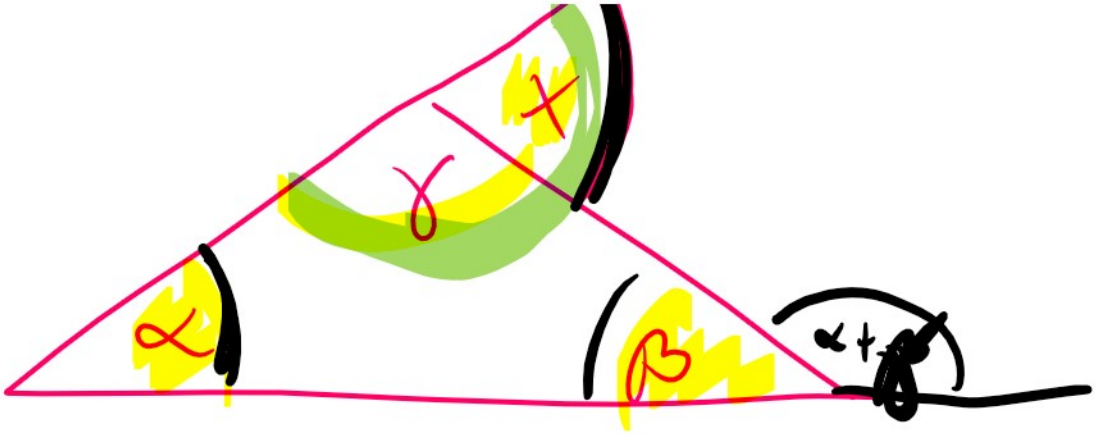


$\operatorname{tg}\beta = a_1 \qquad \operatorname{tg}\gamma = a_2$

$\alpha = 180 - \gamma + \beta$

$180 - \gamma + \beta + 180 - \alpha = 180$

$\boxed{\alpha = 180 - \gamma + \beta}$



$$\alpha + \beta = x$$

$$\alpha = 180 - \gamma + \beta$$

$$tg\alpha = tg(180 - \gamma + \beta) =$$

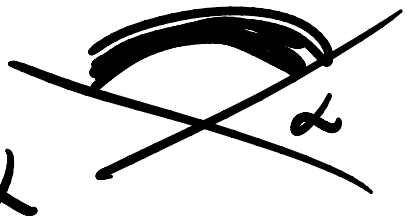
$$tg(180 + \beta - \gamma) = tg(\beta - \gamma)$$

$$tg(180 + \alpha)$$

$$\frac{tg\beta - tg\gamma}{1 + tg\beta \cdot tg\gamma} = \frac{a_1 - a_2}{1 + a_1 a_2}$$

$$\frac{\pi}{}$$

$\operatorname{tg}\alpha'' = \operatorname{tg}(180^\circ - \alpha) = -\operatorname{tg}\alpha$



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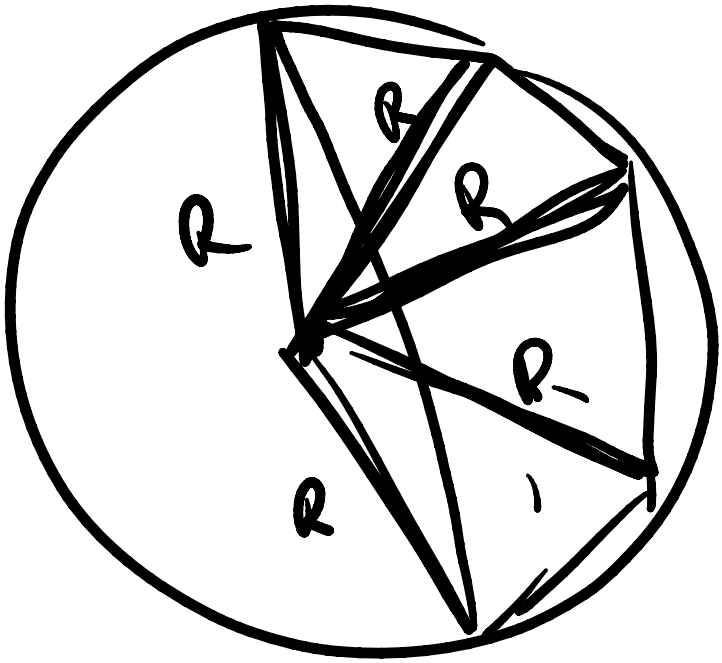
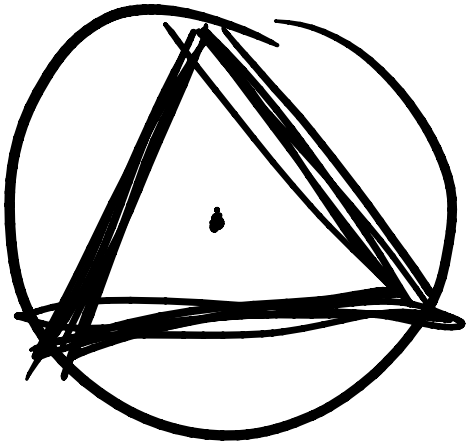
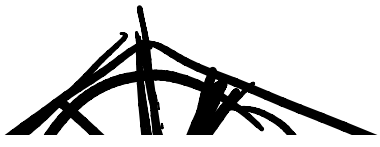




K ⇒ L ⇒ 3

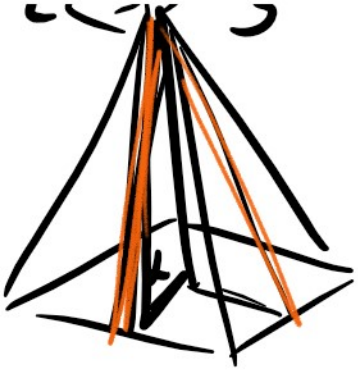
1) ⇔ 2 ⇒ 3

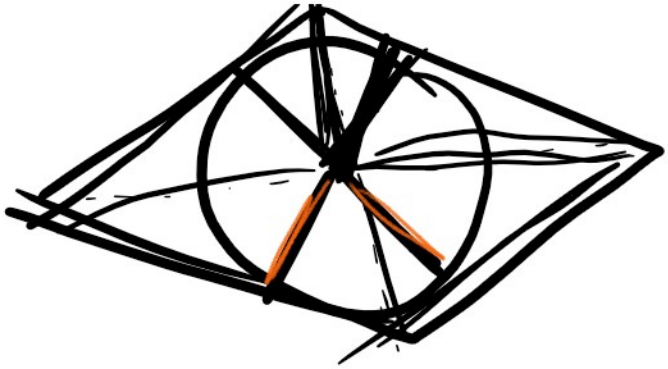


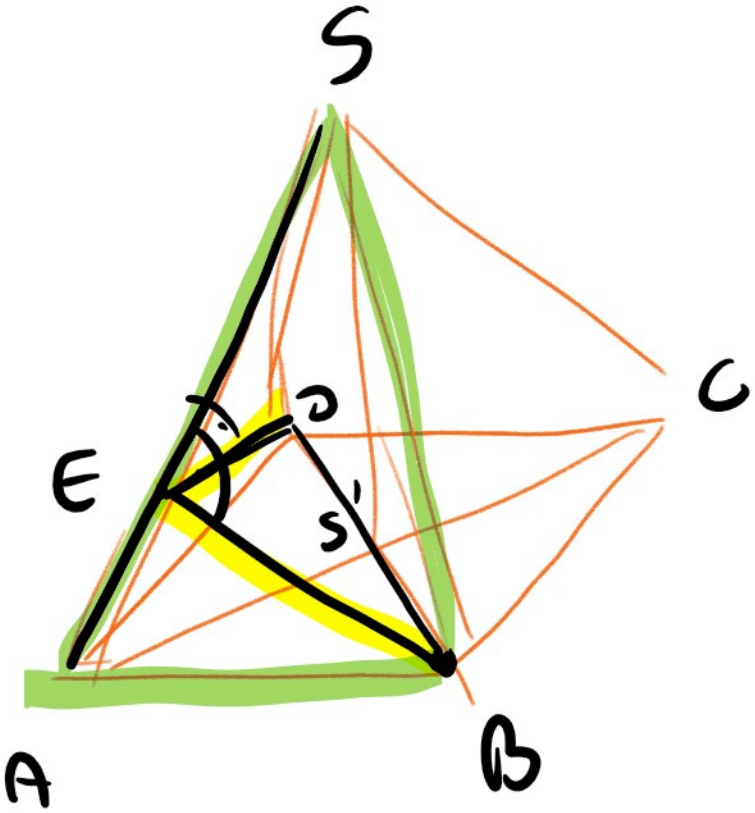
1)

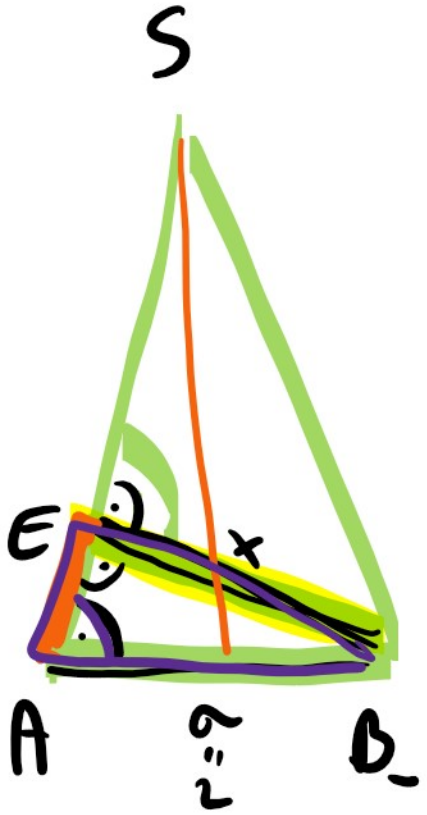
2)

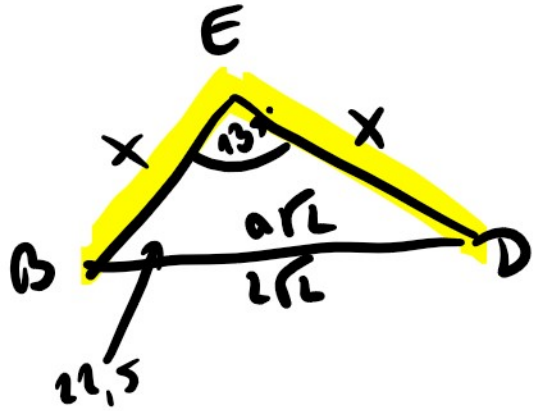
3)

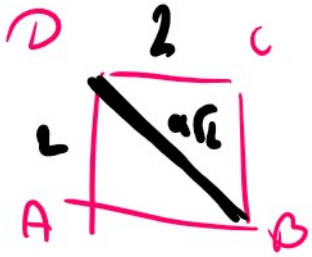












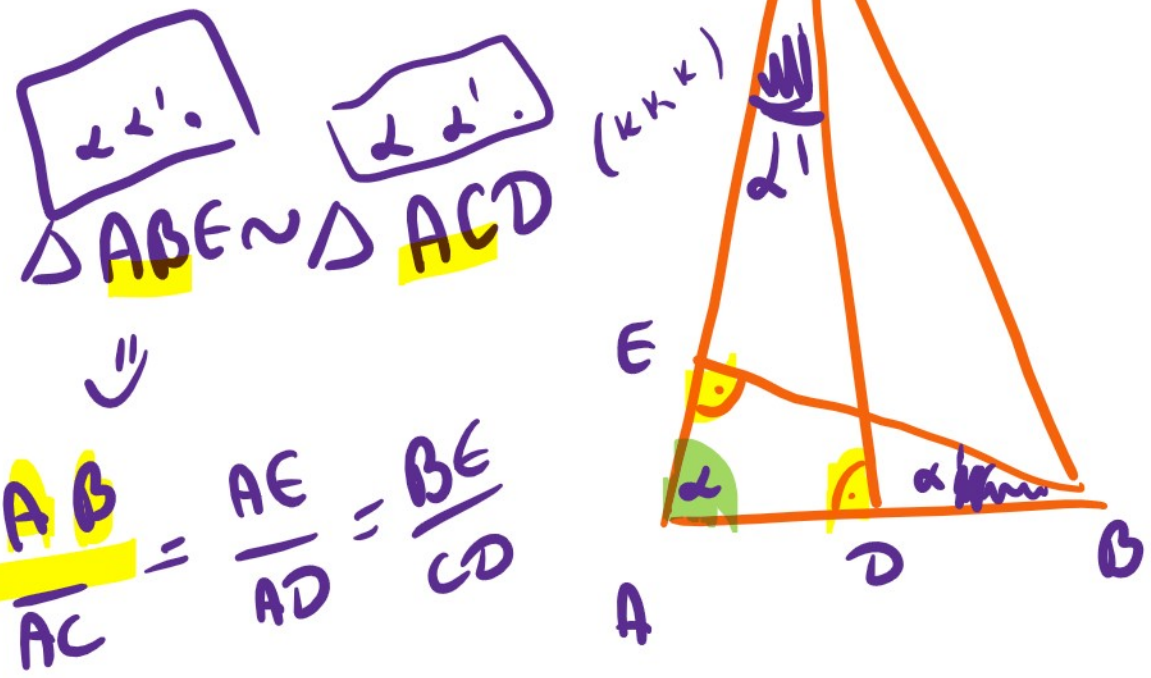
$y = \underbrace{2x^2 - 2x^2\cos 135^\circ}_{} = 2x^2 + \sqrt{2}\,x^2$

$x^2(2+\sqrt{2})$

$x > 0$

$x = \sqrt{8}$

$$x = \sqrt{\frac{8}{2+\sqrt{2}}}$$



$\triangle ABE \sim \triangle ACD$

$$\frac{AB}{AC} = \frac{AE}{AD} = \frac{BE}{CD}$$

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$|q|<1 \quad (x \neq 0)$

$|q| = \left|\frac{3}{x^2}\right| < 1 \quad / \cdot |x^2| > 0$

II:

$3 < x^2 \iff |x| > \sqrt{3}$

$x \in (-\infty, -\sqrt{3}) \cup (\sqrt{3}, +\infty)$

$f(x) = S = \frac{a_1}{1-q} = \frac{x}{1-\frac{3}{x^2}} = \frac{x^3}{x^2-3}$