

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

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

$$(a - b)^2 = a^2 - 2ab + b^2$$

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

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

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

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

$$ax^2 + bx + c = a(x - x_1)(x - x_2)$$

$$\text{при } a = 1: \begin{cases} x_1 + x_2 = -b \\ x_1 \cdot x_2 = c \end{cases}$$

Ариф.  $\div$

$$a_n = a_1 + d(n - 1)$$

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

$$a_n = \frac{a_{n+1} + a_{n-1}}{2}$$

$$\vec{a} \cdot \vec{b} = |\vec{a}| \cdot |\vec{b}| \cdot \cos \varphi$$

$$\vec{a} = (2; 3)$$

$$\vec{b} = (4; 5)$$

$$\vec{a} \cdot \vec{b} = 2 \cdot 4 + 3 \cdot 5 = 23$$

$$\vec{a} + \vec{b} = (2 + 4; 3 + 5) = (6; 8)$$

$$3\vec{b} = (3 \cdot 4; 3 \cdot 5) = (12; 15)$$

$$1 \text{ ц (центнер)} = 100 \text{ кг}$$

$$1 \text{ а (ар, сотка)} = 100 \text{ м}^2$$

$$1 \text{ га (гектар)} = 10^4 \text{ м}^2$$

$$\frac{1}{2}^{(3)} + \frac{1}{3}^{(2)} = \frac{3 + 2}{6} = \frac{5}{6}$$

$$\frac{2^{(x+1)}}{x} - \frac{3^{(x)}}{x+1} = \frac{2x + 2 - 3x}{x \cdot (x+1)} = \frac{2 - x}{x \cdot (x+1)}$$

$$2 \cdot (a + 3) = 2a + 2 \cdot 3 = 2a + 6$$

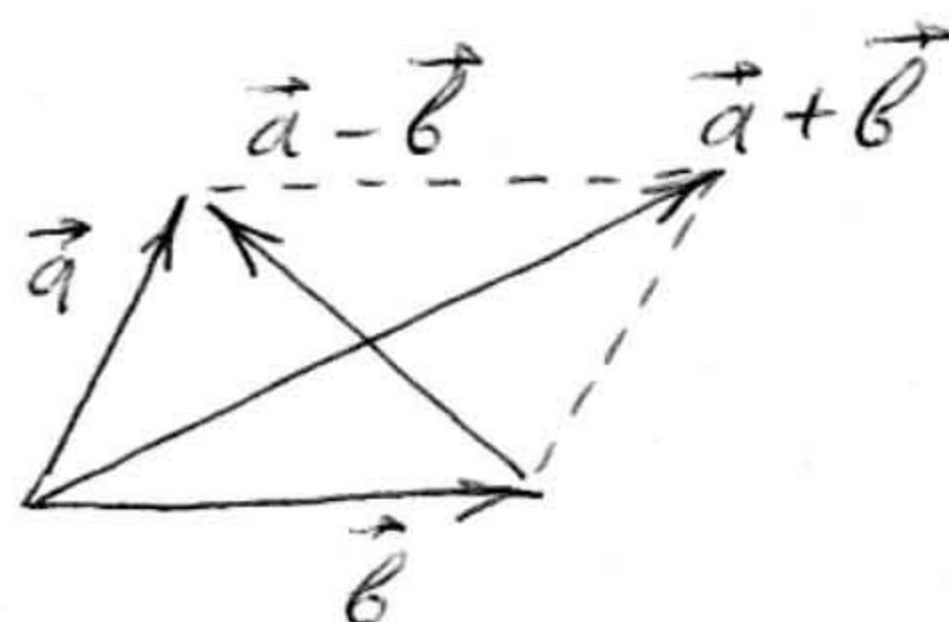
Геом.  $\div$

$$b_n = b_1 \cdot q^{n-1}, \quad q \neq 0, \quad b_1 \neq 0$$

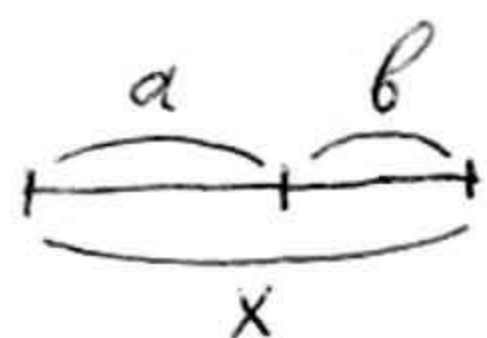
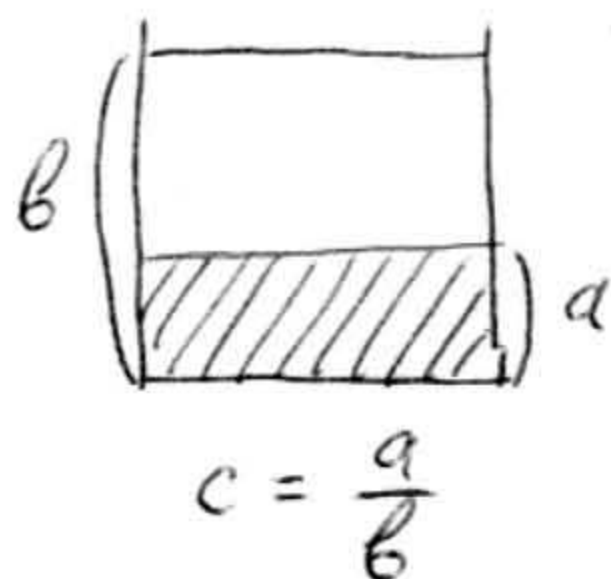
$$S_n = \frac{b_1(1 - q^n)}{1 - q}$$

$$S = \frac{b_1}{1 - q} \quad (|q| < 1)$$

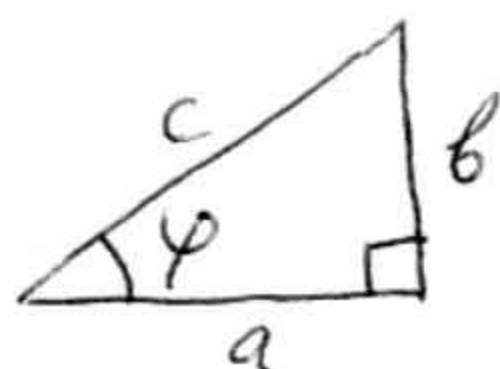
$$b_n = \sqrt{b_{n+1} \cdot b_{n-1}}$$



|          |            |
|----------|------------|
| ↑ на 3%  | $k = 1,03$ |
| ↓ на 10% | $k = 0,90$ |



$$\frac{a}{x} + \frac{b}{x} = 1$$



$$a^2 + b^2 = c^2$$

$$\sin \varphi = \frac{b}{c}$$

$$\cos \varphi = \frac{a}{c}$$

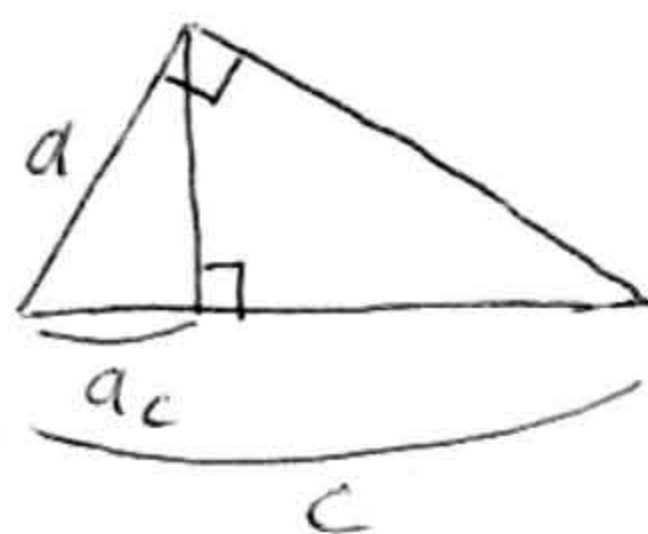
$$\tan \varphi = \frac{b}{a}$$

$$\cot \varphi = \frac{a}{b}$$

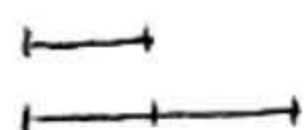
Неравенство  $\Delta$



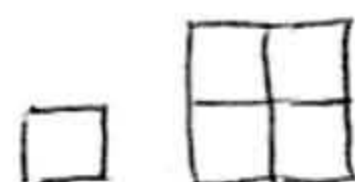
$$\begin{cases} a + b > c \\ b + c > a \\ a + c > b \end{cases}$$



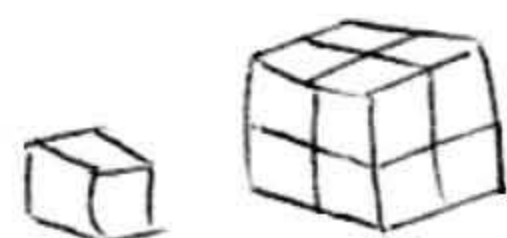
$$a^2 = a_c \cdot c$$



$$l_2 = k \cdot l_1$$



$$S_2 = k^2 \cdot S_1$$



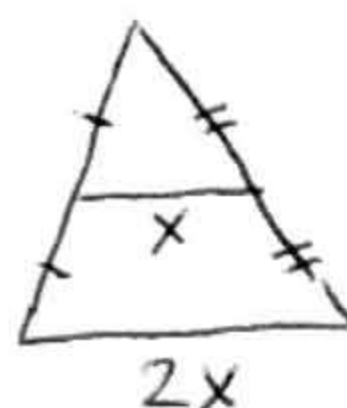
$$V_2 = k^3 \cdot V_1$$

(k - коэфф. подобия)

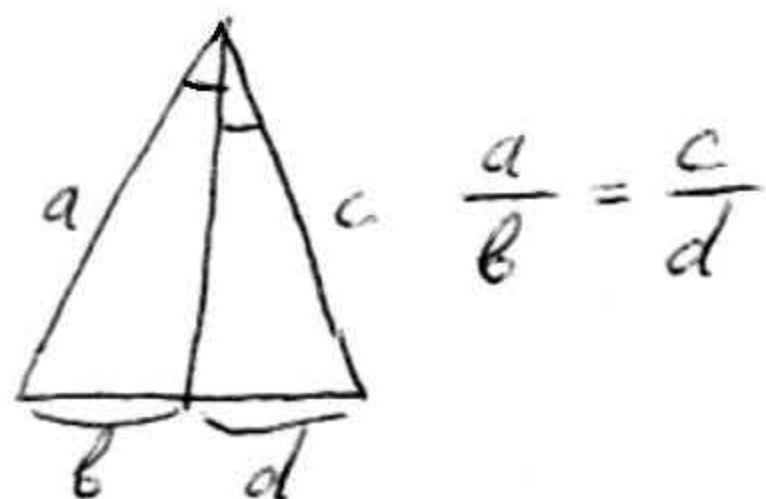
Равнобедр.  $\Delta$



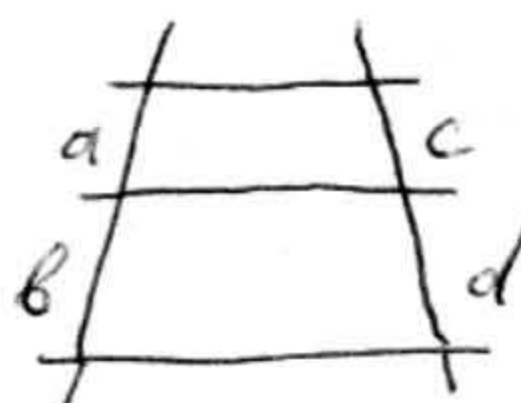
Ср. линия



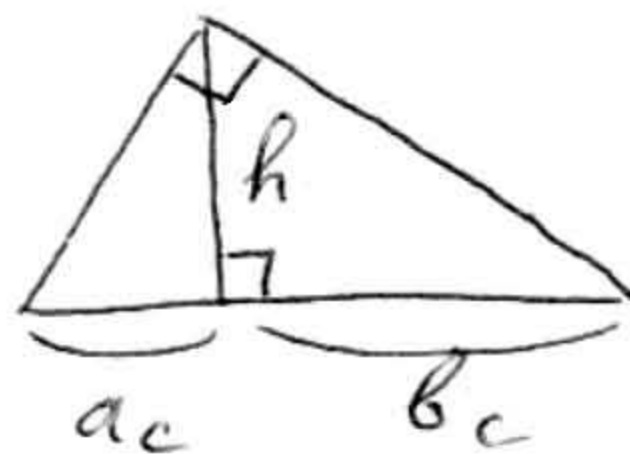
Св. Сисс.



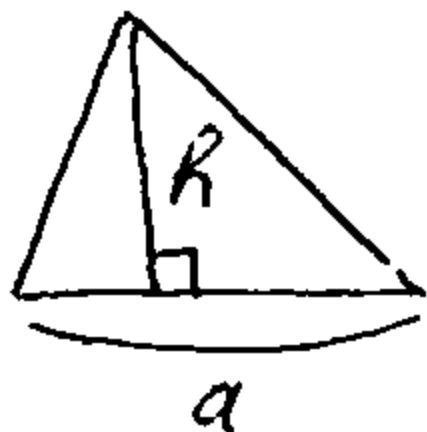
т. Фалеса



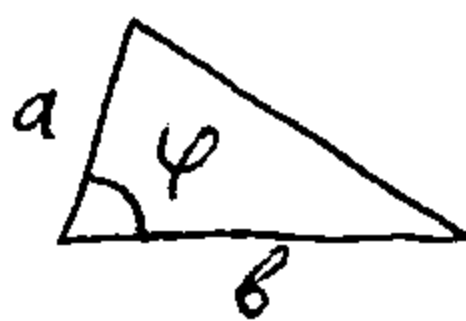
$$\frac{a}{b} = \frac{c}{d}$$



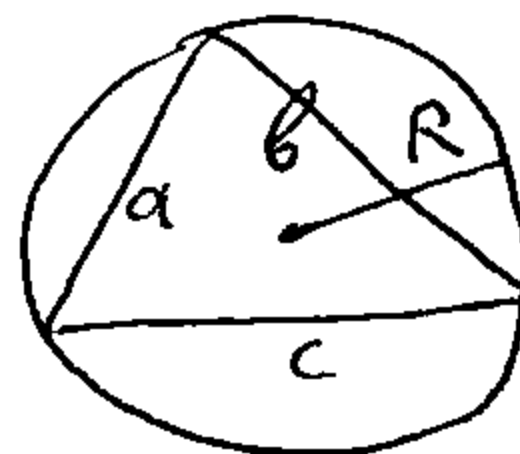
$$h^2 = a_c \cdot b_c$$



$$S = \frac{1}{2} ah$$

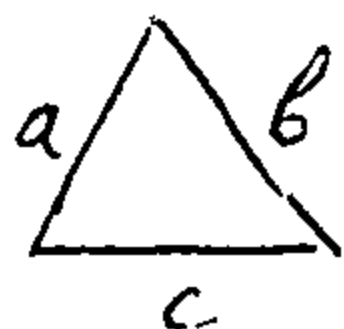


$$S = \frac{1}{2} ab \sin \varphi$$



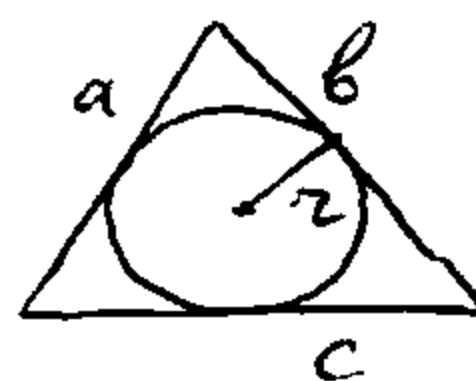
$$S = \frac{abc}{4R}$$

Ф. Герона

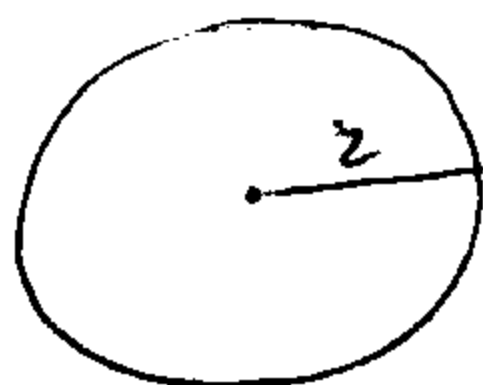


$$S = \sqrt{p(p-a)(p-b)(p-c)}$$

$$p = \frac{a+b+c}{2}$$

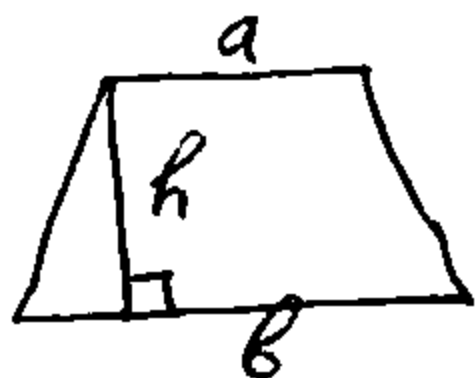


$$S = pz$$

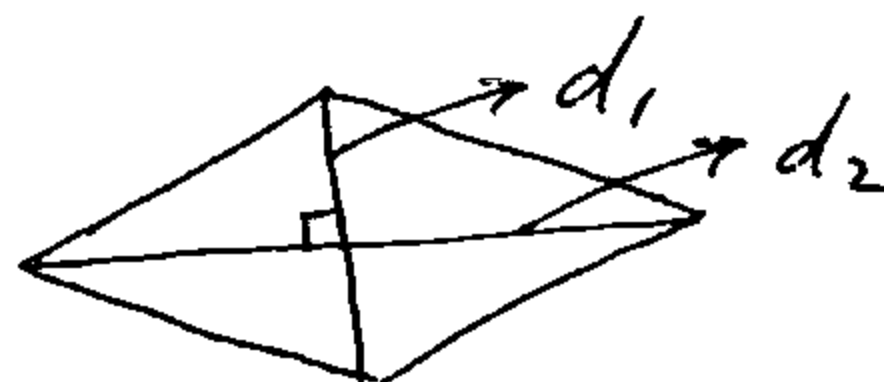


$$S = \pi r^2$$

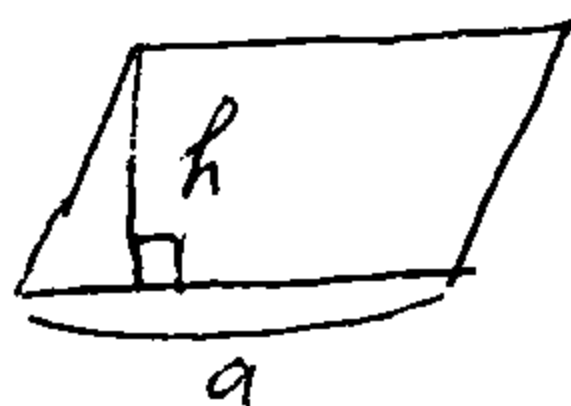
$$C = 2\pi r$$



$$S = \frac{a+b}{2} \cdot h$$



$$S = \frac{1}{2} d_1 d_2$$

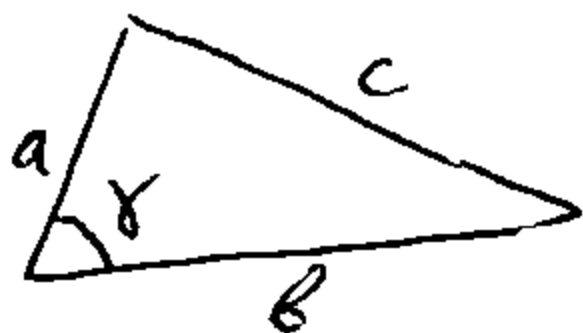


$$S = ah$$



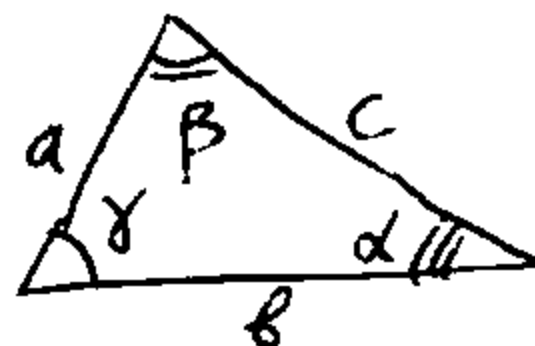
$$S = ab \sin \varphi$$

Т. cos



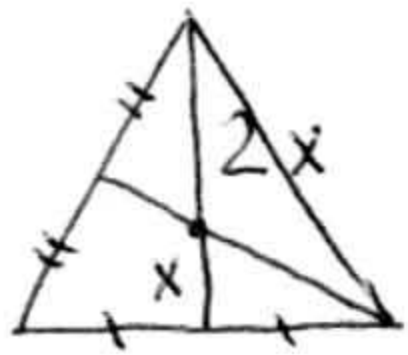
$$c^2 = a^2 + b^2 - 2ab \cos \gamma$$

Т. sin

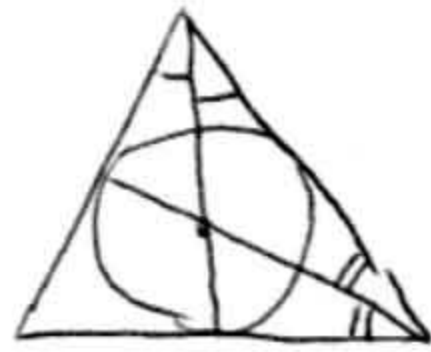


$$\frac{a}{\sin \alpha} = \frac{b}{\sin \beta} = \frac{c}{\sin \gamma} = 2R$$

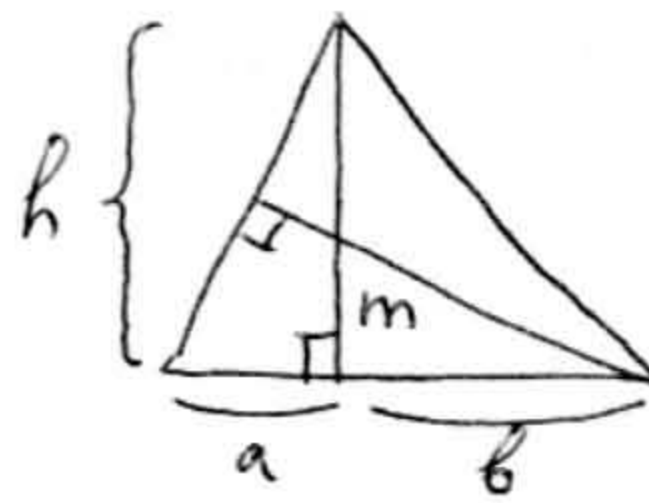
неравна



Евкл.

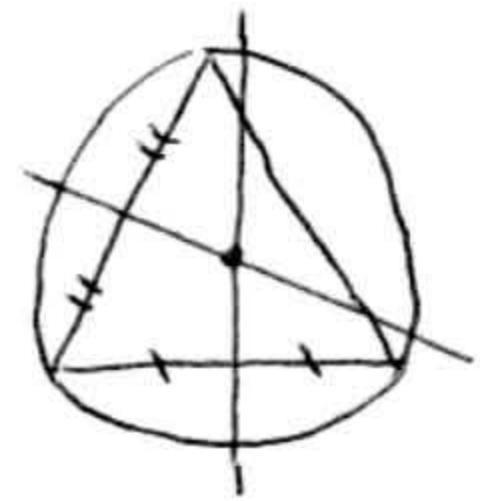


Евкл.



$$ab = mh$$

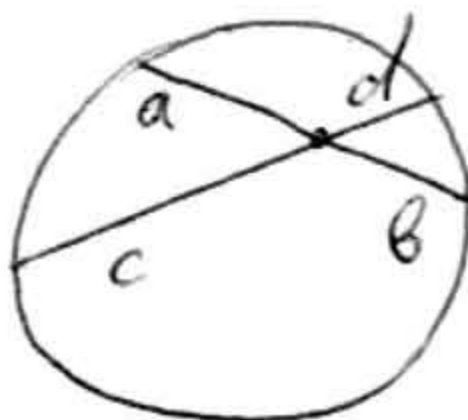
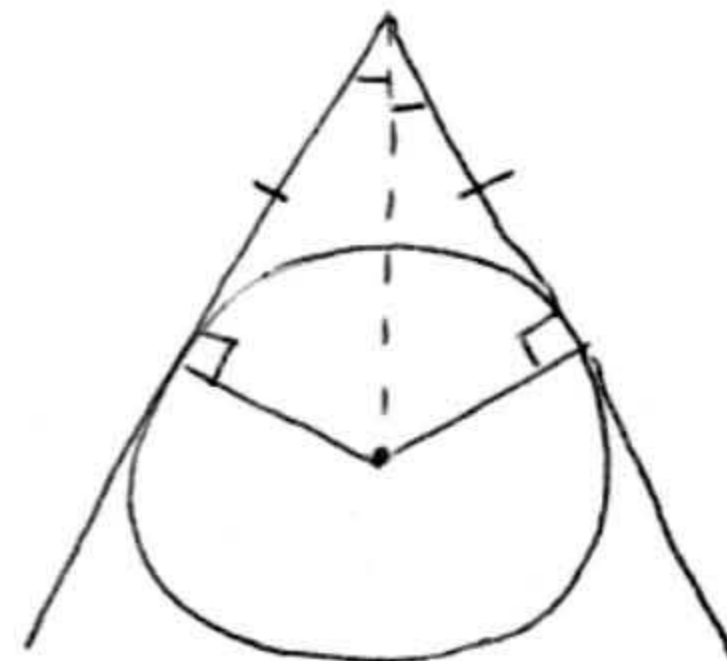
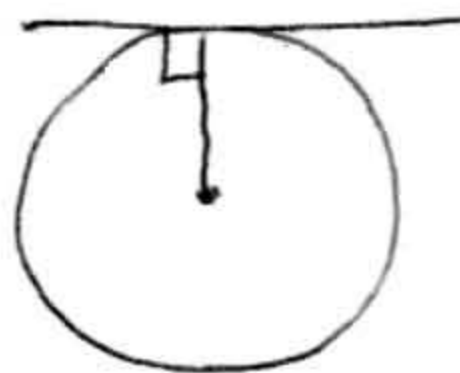
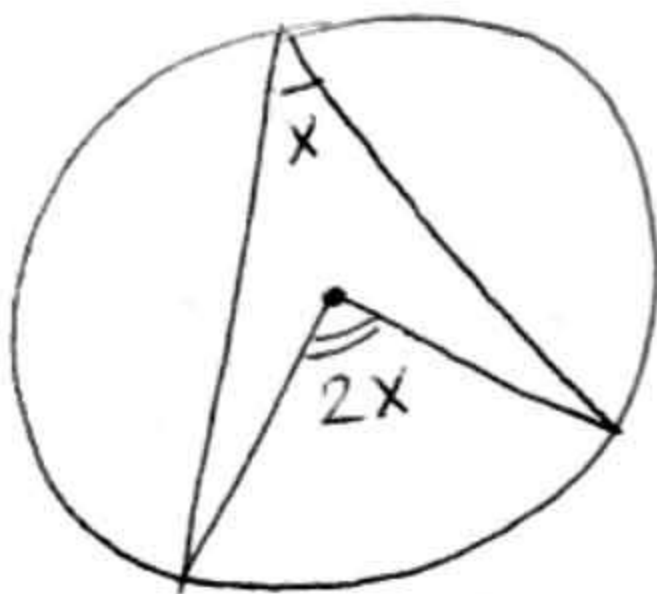
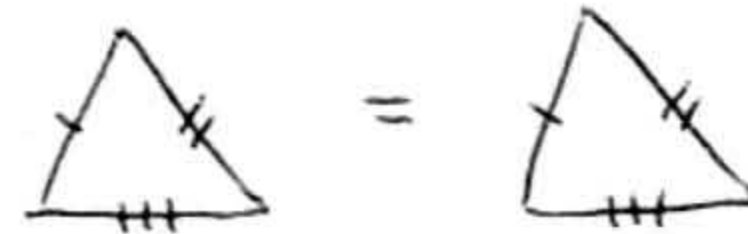
сеп. непр.



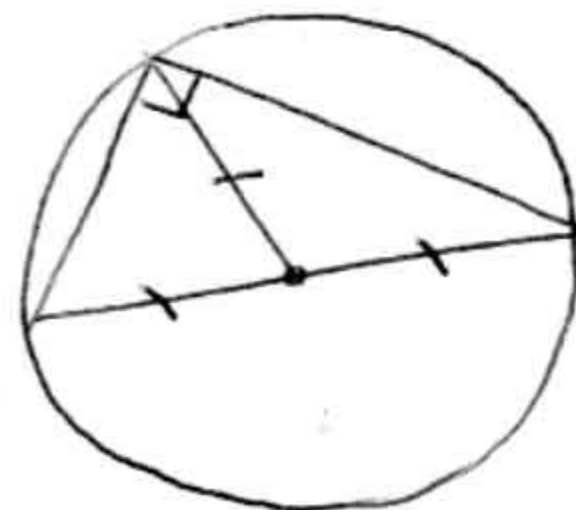
Погобие  $\Delta$



Равенство  $\Delta$

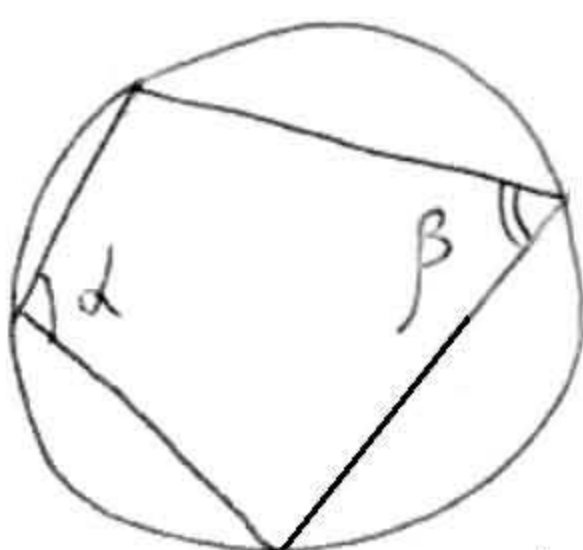


$$ab = cd$$

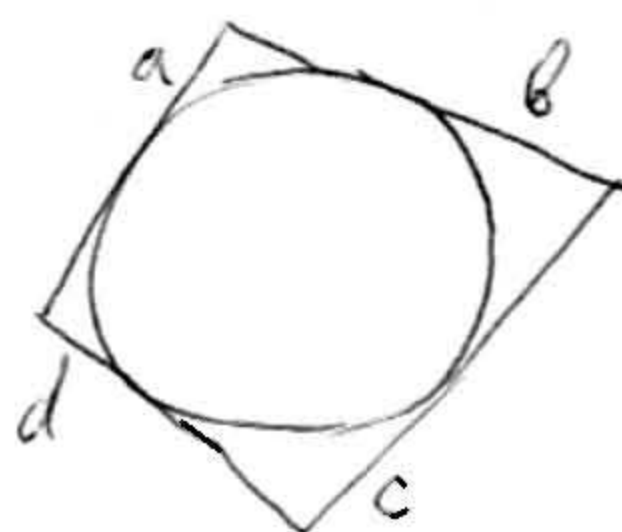


$$S_n = (n-2) \cdot 180^\circ$$

$$d = \frac{n}{2} \cdot (n-3)$$



$$\alpha + \beta = 180^\circ$$



$$a + c = b + d$$

$$a^{\log_a b} = b \text{ — осн. лог. т.}$$

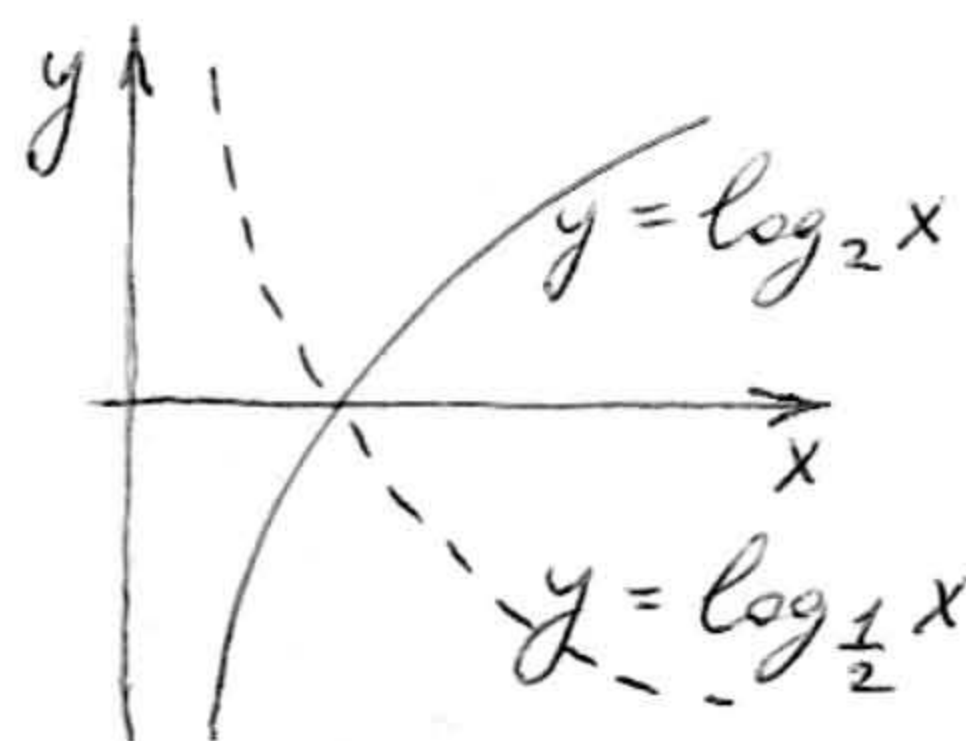
$$\log_a b + \log_a c = \log_a bc$$

$$\log_a b - \log_a c = \log_a \frac{b}{c}$$

$$\log_a b^k = k \cdot \log_a b$$

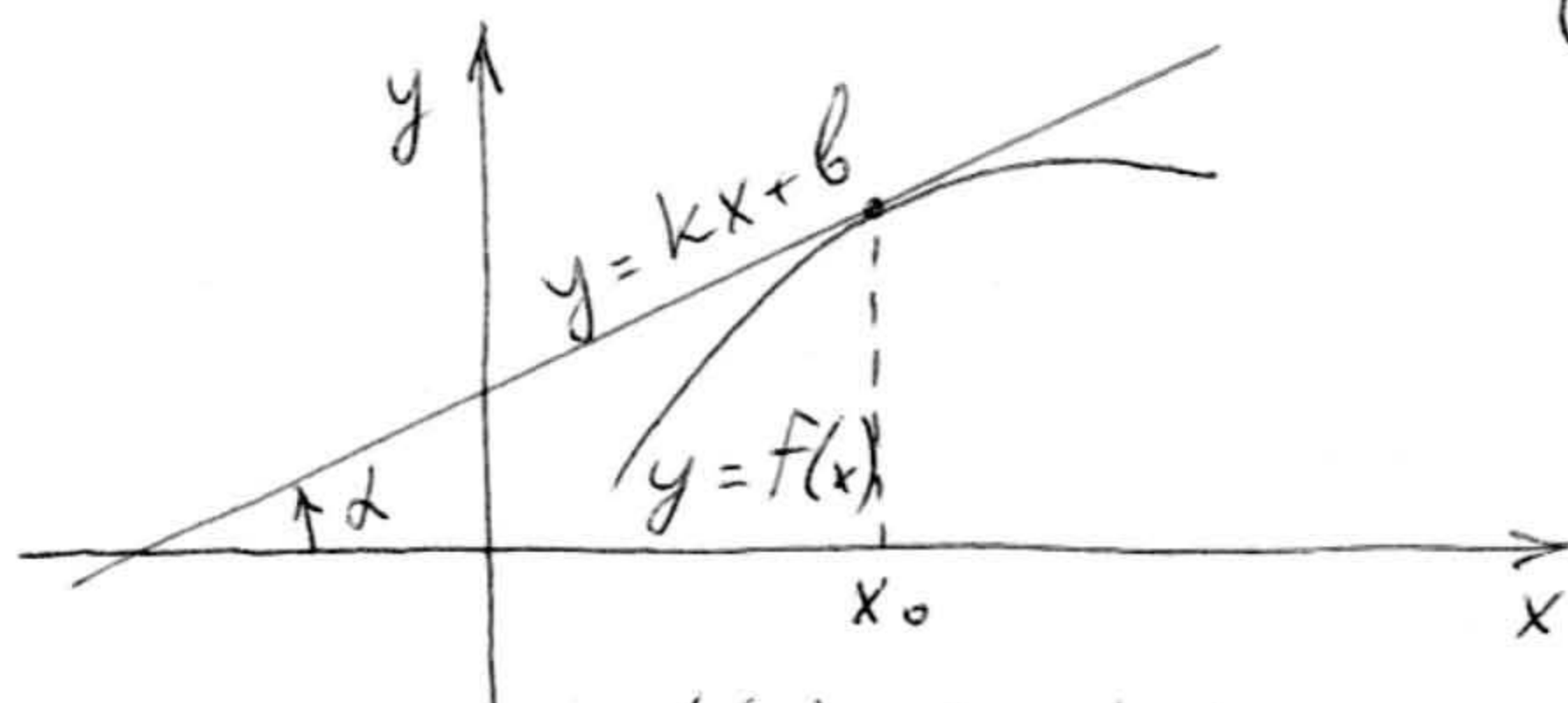
$$\log_{a^k} b = \frac{1}{k} \cdot \log_a b$$

$$\log_a b = \frac{\log_c b}{\log_c a}$$



$$y = \log_a x$$

$$\begin{cases} x > 0 \\ a > 0 \\ a \neq 1 \end{cases}$$



$$f'(x_0) = k = \operatorname{tg} \alpha$$

$$(x^p)' = p x^{p-1}$$

$$(x)' = 1$$

$$(a^x)' = a^x \cdot \ln a$$

$$(e^x)' = e$$

$$(\log_a x)' = \frac{1}{x \cdot \ln a}$$

$$(\ln x)' = \frac{1}{x}$$

$$(u \cdot v)' = u'v + uv'$$

$$\left(\frac{u}{v}\right)' = \frac{u'v - uv'}{v^2}$$

$$u'(v) = u' \cdot v'$$

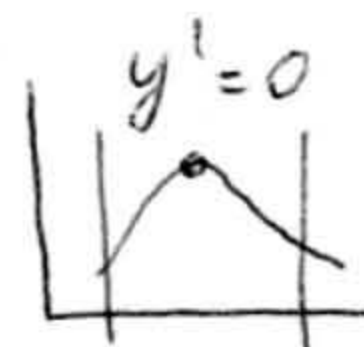
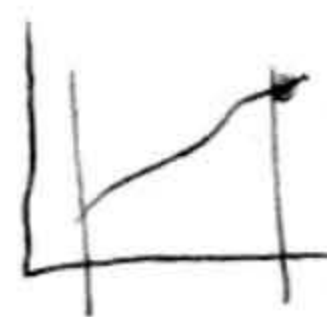
$$(\sin x)' = \cos x$$

$$(\cos x)' = -\sin x$$

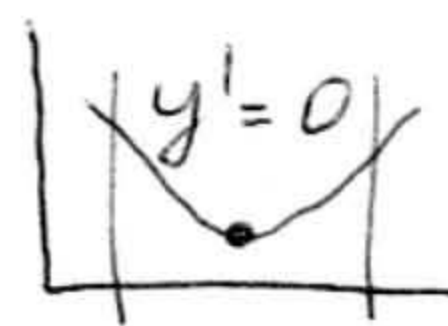
$$(\operatorname{tg} x)' = \frac{1}{\cos^2 x}$$

$$(\operatorname{ctg} x)' = -\frac{1}{\sin^2 x}$$

Макс.



Мин.



$$\int x^p dx = \frac{x^{p+1}}{p+1} + C$$

$$\int (kx+b)^p dx = \frac{(kx+b)^{p+1}}{k \cdot (p+1)} + C$$

$$\int \frac{dx}{x} = \ln|x| + C$$

$$\int \frac{dx}{kx+b} = \frac{1}{k} \cdot \ln|kx+b| + C$$

$$\int e^x dx = e^x + C$$

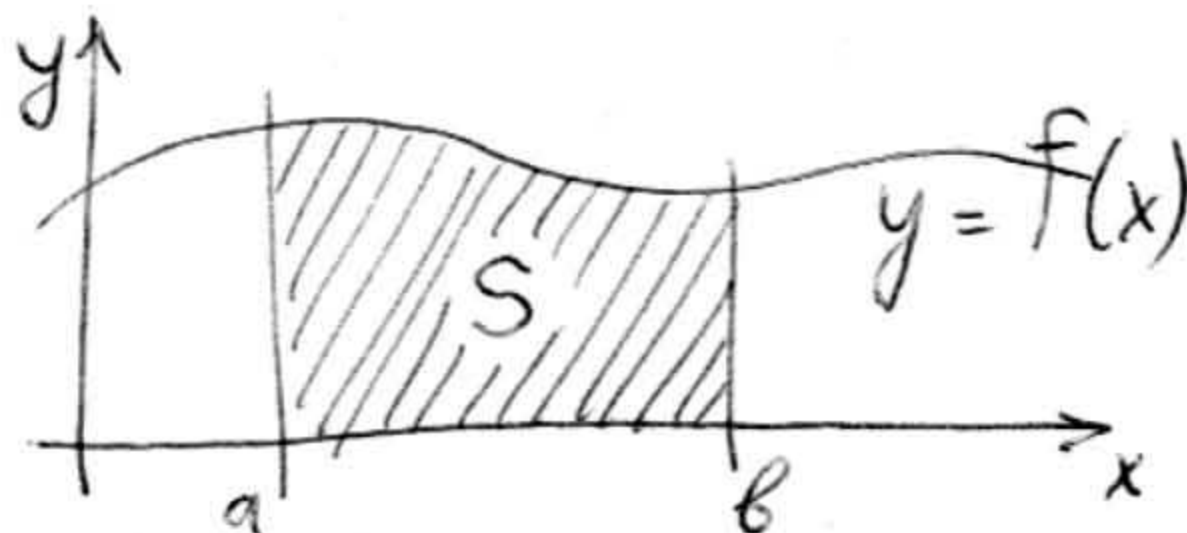
$$\int e^{kx+b} dx = \frac{1}{k} e^{kx+b} + C$$

$$\int \sin x dx = -\cos x + C$$

$$\int \sin(kx+b) dx = -\frac{1}{k} \cos(kx+b) + C$$

$$\int \cos x dx = \sin x + C$$

$$\int \cos(kx+b) dx = \frac{1}{k} \sin(kx+b) + C$$



$$\int f(x) dx = F(x) + C$$

$$F'(x) = f(x)$$

$$S = \int_a^b f(x) dx = F(x) \Big|_a^b = F(b) - F(a)$$



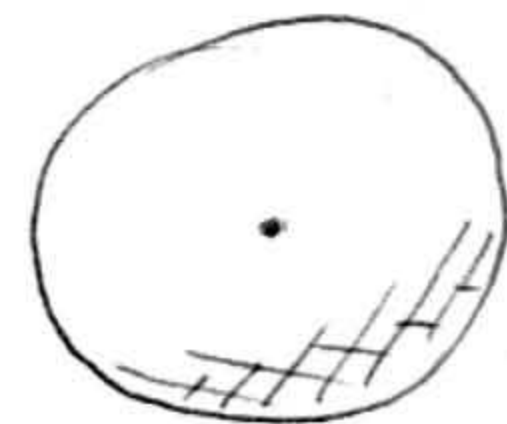
$$S_{\text{бок.}} = \pi r l$$



$$V = S_{\text{осн.}} \cdot h$$

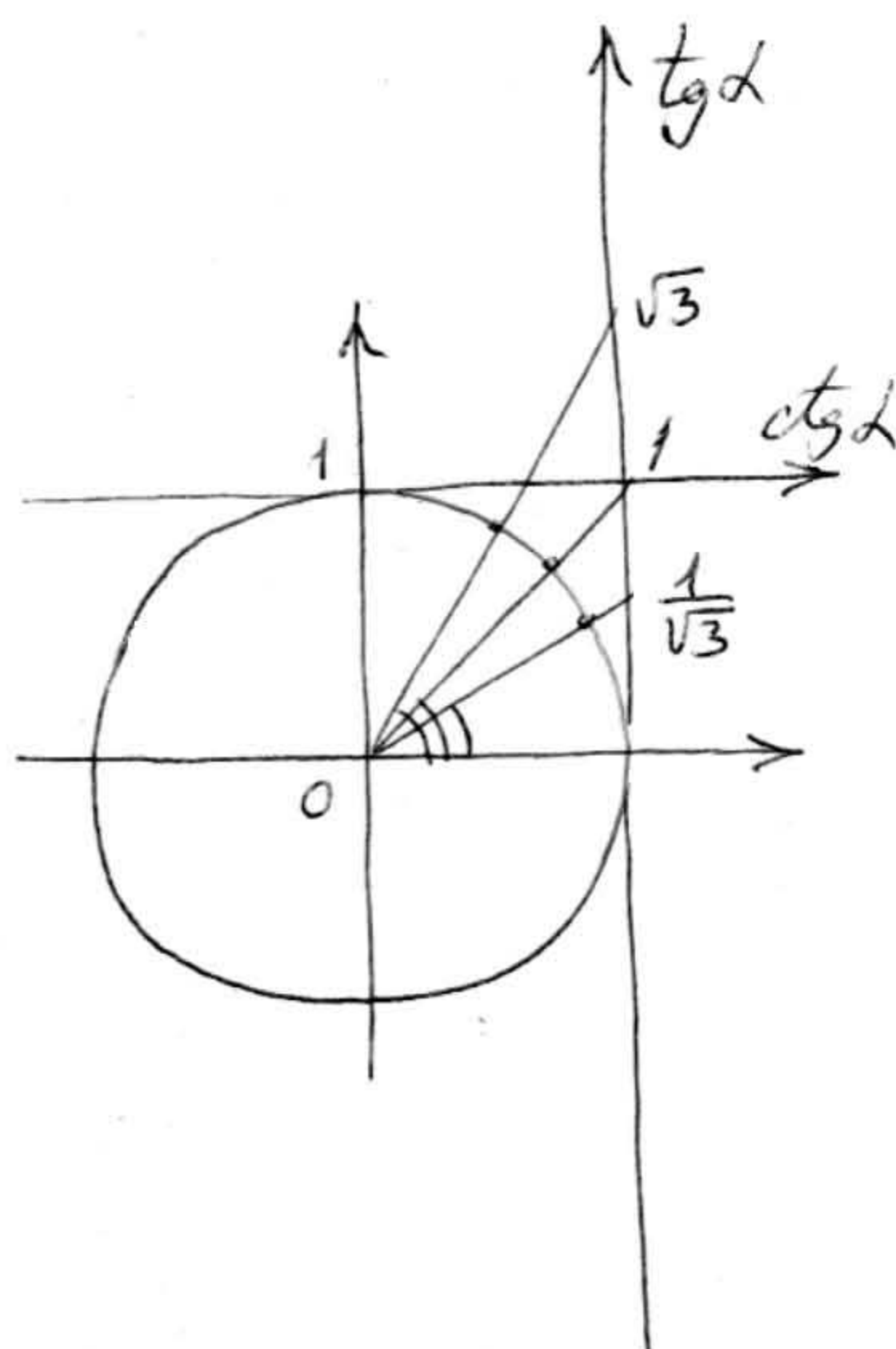
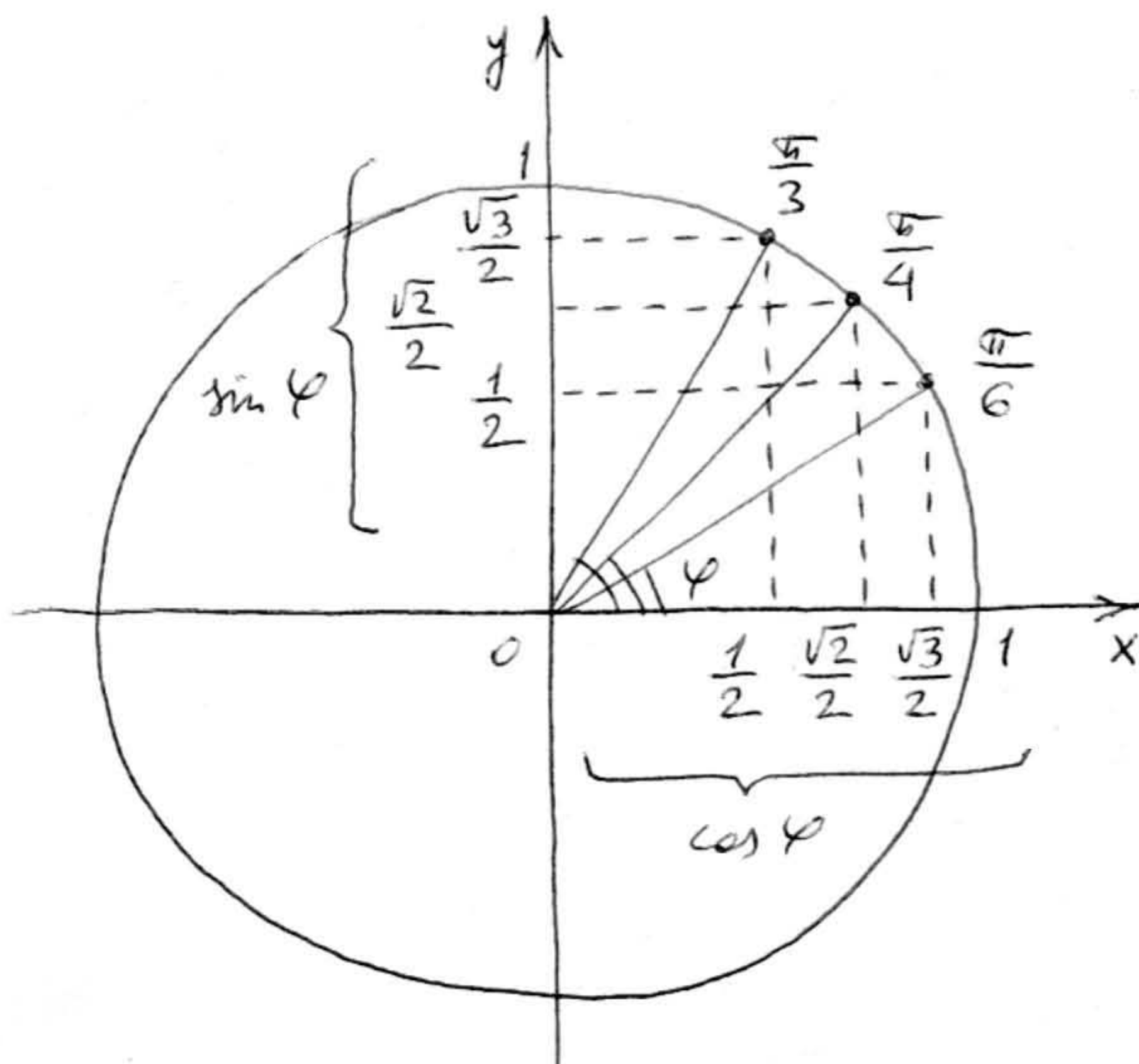


$$V = \frac{1}{3} S_{\text{осн.}} \cdot h$$



$$S = 4\pi R^2$$

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



$$\sin^2 \alpha + \cos^2 \alpha = 1$$

$$\sin 2\alpha = 2 \sin \alpha \cos \alpha$$

$$\cos 2\alpha = \cos^2 \alpha - \sin^2 \alpha$$

$$\sin^2 \alpha = \frac{1 - \cos 2\alpha}{2}$$

$$\cos^2 \alpha = \frac{1 + \cos 2\alpha}{2}$$

$$\sin(\alpha + \beta) = \sin \alpha \cos \beta + \cos \alpha \sin \beta$$

$$\cos(\alpha + \beta) = \cos \alpha \cos \beta - \sin \alpha \sin \beta$$

$$\sin \alpha + \sin \beta = 2 \sin \frac{\alpha + \beta}{2} \cos \frac{\alpha - \beta}{2}$$

$$\sin \alpha - \sin \beta = 2 \cos \frac{\alpha + \beta}{2} \sin \frac{\alpha - \beta}{2}$$

$$\cos \alpha + \cos \beta = 2 \cos \frac{\alpha + \beta}{2} \cos \frac{\alpha - \beta}{2}$$

$$\cos \alpha - \cos \beta = -2 \sin \frac{\alpha + \beta}{2} \sin \frac{\alpha - \beta}{2}$$

$$\sin x = a \quad \left| \quad x = (-1)^k \arcsin a + \pi k$$

$$\cos x = a \quad \left| \quad x = \pm \arccos a + 2\pi k$$

$$\operatorname{tg} x = a \quad \left| \quad x = \operatorname{arctg} a + \pi k$$

$$\operatorname{ctg} x = a \quad \left| \quad x = \operatorname{arccotg} a + \pi k, \quad k \in \mathbb{Z}$$