СВОЙСТВА СТЕПЕНЕЙ И КОРНЕЙ

$$a^{-n} = \frac{1}{a^n} \qquad \frac{a^m}{a^n} = a^{m-n}$$

$$a^{\frac{1}{n}} = \sqrt[n]{a} \qquad (a^n)^m = a^{n \cdot m}$$

$$a^0 = 1 \qquad \sqrt[m]{a^n} = a^{\frac{n}{m}}$$

$$a^m a^n = a^{m+n}$$

СВОЙСТВА ЛОГАРИФМОВ

$$\log_a b = c <=> a^c = b$$

$$\log_a 1 = 0$$

$$a^{\log_a b} = b$$

$$\log_b m + \log_b n = \log_b (m \cdot n)$$

$$\log_b m - \log_b n = \log_b \left(\frac{m}{n}\right)$$

$$\log_b a^n = n \cdot \log_b a$$

$$\log_{b^n} a = \frac{1}{n} \log_b a$$

$$\log_{b^n} a^m = \frac{m}{n} \cdot \log_b a$$

$$\log_a a = 1$$

$$\log_{a^n} a^m = \frac{m}{n}$$

$$\log_{a^n} b^n = \log_a b$$

$$\log_a b = \frac{1}{\log_b a}$$

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

$$a^{\log_c b} = b^{\log_c a}$$

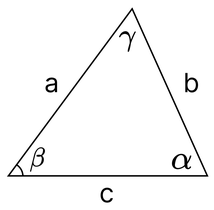
$$\log_{10}(a) = \lg(a)$$

$$\log_e a = \ln a$$

примечание

- $\lg a$ ⟶ десятичный логарифм
- $\ln a$ ⟶ натуральный логарифм

ТРЕУГОЛЬНИК



$$S = \frac{1}{2} a h$$

$$S = \frac{1}{2} a b \sin\gamma$$

$$p = \frac{1}{2}(a + b + c) \longleftarrow \text{полупериметр}$$

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

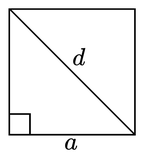
$$S = \frac{abc}{4R}$$

$$S = pr$$

$$\frac{\sin\alpha}{a} = \frac{\sin\beta}{b} = \frac{\sin\gamma}{c} = \frac{1}{2R}$$

$$a^2 = b^2 + c^2 - 2bc \cdot \cos\alpha$$

КВАДРАТ

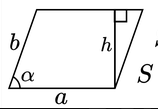


$$S = a^2$$

$$P = 4a$$

$$d = a\sqrt{2}$$

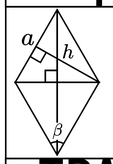
ПАРА-ГРАММ



$$S = ah$$

$$S = ab \cdot \sin\alpha$$

РОМБ

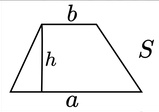


$$S = a^2 \cdot \sin\beta$$

$$S = ah$$

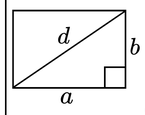
$$S = \frac{1}{2} \cdot d_1 \cdot d_2$$

ТРАПЕЦИЯ



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

ПРЯМО-НИК



$$S = ab$$

$$P = 2(a+b)$$

$$d = \sqrt{a^2 + b^2}$$

ФОРМУЛЫ СОКРАЩЁННОГО УМНОЖЕНИЯ

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

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

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

ЕДИНИЧНАЯ ОКРУЖНОСТЬ