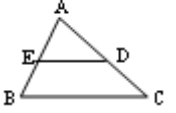
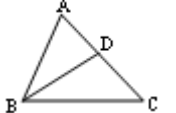
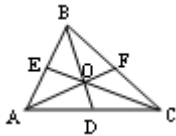
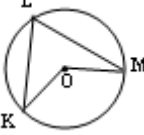
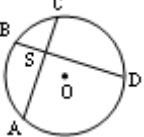
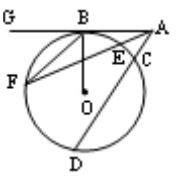


Formulas

(pieļaujamām burtu vērtībām)

<p>Saisinātās reizināšanas formulas $(a \pm b)^3 = a^3 \pm 3a^2b + 3ab^2 \pm b^3$ $a^3 \pm b^3 = (a \pm b)(a^2 \mp ab + b^2)$</p> <p style="text-align: center;">Kvadrātrinoms</p> $ax^2 + bx + c = a(x - x_1)(x - x_2)$	<p style="text-align: center;">Kvadrātvienādojums</p> $ax^2 + bx + c = 0 \quad (a \neq 0)$ $\begin{cases} x_1 + x_2 = -\frac{b}{a} \\ x_1 \cdot x_2 = \frac{c}{a} \end{cases}$	<p style="text-align: center;">Modulis</p> $ a = \begin{cases} a, & \text{ja } a \geq 0 \\ -a, & \text{ja } a < 0 \end{cases}$ $ a \geq 0$ $ a + b \leq a + b $
<p style="text-align: center;">Aritmētiskā progresija</p> $a_n = a_1 + (n - 1)d$ $S_n = \frac{(a_1 + a_n)n}{2}$ $a_k = \frac{a_{k+1} + a_{k-1}}{2}$	<p style="text-align: center;">Ģeometriskā progresija</p> $b_n = b_1 \cdot q^{n-1}$ $S_n = \frac{b_1(q^n - 1)}{q - 1}$ $b_k^2 = b_{k-1} \cdot b_{k+1}$	<p style="text-align: center;">Bezgalīgi dilstoša ģeometriskā progresija</p> $ q < 1$ $S = \frac{b_1}{1 - q}$
<p style="text-align: center;">Pakāpju īpašības</p> $a^m \cdot a^n = a^{m+n}$ $a^m \cdot b^m = (ab)^m$ $a^m : a^n = a^{m-n}$ $a^{\frac{m}{n}} = \sqrt[n]{a^m}$ $(a^m)^n = a^{mn}$ $a^{-n} = \frac{1}{a^n}$	<p style="text-align: center;">Sakņu īpašības</p> $\sqrt[n]{a} \cdot \sqrt[n]{b} = \sqrt[n]{a \cdot b}$ $\frac{\sqrt[n]{a}}{\sqrt[n]{b}} = \sqrt[n]{\frac{a}{b}}$ $\sqrt[n]{\sqrt[m]{a^{k \cdot m}}} = \sqrt[n]{a^k}$ $\sqrt[n]{\sqrt[m]{a}} = \sqrt[n \cdot m]{a}$ $\sqrt[n]{a} \cdot \sqrt[k]{b} = \sqrt[n \cdot k]{a^k \cdot b^n}$ $\sqrt{a^2} = a $	<p style="text-align: center;">Logaritmu īpašības</p> $a^{\log_a b} = b$ $\log_a(xy) = \log_a x + \log_a y$ $\log_a \frac{x}{y} = \log_a x - \log_a y$ $\log_a x^k = k \cdot \log_a x$ $\log_a b = \frac{\log_c b}{\log_c a}$ $\log_{a^k} x = \frac{1}{k} \log_a x$
<p style="text-align: center;">Kombinatorika</p> $P_n = n!$ $A_n^k = \frac{n!}{(n - k)!}$ $C_n^k = \frac{n!}{k!(n - k)!}$ $C_n^m = C_n^{n-m}$ $C_n^0 + C_n^1 + C_n^2 + \dots + C_n^{n-1} + C_n^n = 2^n$	<p style="text-align: center;">Varbūtību teorija</p> $P(A) = \frac{k}{n}, \quad k - \text{labvēlīgo notikumu skaits,}$ <p>n - visu iespējamo notikumu skaits</p> $P(A \cup B) = P(A) + P(B),$ <p>kur A, B - nesavienojami notikumi</p> $P(A \cap B) = P(A) \cdot P(B),$ <p>kur A, B - neatkarīgi notikumi</p>	<p style="text-align: center;">Kompleksie skaitļi</p> $i^2 = -1$ $z = a + bi$ $\bar{z} = a - bi$ $z \cdot \bar{z} = a^2 + b^2$ $ z = \sqrt{a^2 + b^2}$
<p style="text-align: center;">Trigonometrija</p>		
$\sin^2 \alpha + \cos^2 \alpha = 1$ $\operatorname{tg} \alpha = \frac{\sin \alpha}{\cos \alpha} \quad \operatorname{ctg} \alpha = \frac{\cos \alpha}{\sin \alpha}$ $1 + \operatorname{tg}^2 \alpha = \frac{1}{\cos^2 \alpha}$ $1 + \operatorname{ctg}^2 \alpha = \frac{1}{\sin^2 \alpha}$ $\operatorname{tg} \alpha \cdot \operatorname{ctg} \alpha = 1$	$\sin 2\alpha = 2 \sin \alpha \cdot \cos \alpha$ $\cos 2\alpha = \cos^2 \alpha - \sin^2 \alpha$ $\operatorname{tg} 2\alpha = \frac{2 \operatorname{tg} \alpha}{1 - \operatorname{tg}^2 \alpha}$ $\sin(\alpha \pm \beta) = \sin \alpha \cos \beta \pm \cos \alpha \sin \beta$ $\cos(\alpha \pm \beta) = \cos \alpha \cos \beta \mp \sin \alpha \sin \beta$ $\operatorname{tg}(\alpha \pm \beta) = \frac{\operatorname{tg} \alpha \pm \operatorname{tg} \beta}{1 \mp \operatorname{tg} \alpha \cdot \operatorname{tg} \beta}$ $\operatorname{ctg}(\alpha \pm \beta) = \frac{\operatorname{ctg} \alpha \cdot \operatorname{ctg} \beta \mp 1}{\operatorname{ctg} \beta \pm \operatorname{ctg} \alpha}$	$\sin \alpha \pm \sin \beta = 2 \sin \frac{\alpha \pm \beta}{2} \cos \frac{\alpha \mp \beta}{2}$ $\cos \alpha + \cos \beta = 2 \cos \frac{\alpha + \beta}{2} \cos \frac{\alpha - \beta}{2}$ $\cos \alpha - \cos \beta = -2 \sin \frac{\alpha + \beta}{2} \sin \frac{\alpha - \beta}{2}$ $\sin \alpha \cdot \cos \beta = \frac{1}{2} (\sin(\alpha - \beta) + \sin(\alpha + \beta))$ $\sin \alpha \cdot \sin \beta = \frac{1}{2} (\cos(\alpha - \beta) - \cos(\alpha + \beta))$ $\cos \alpha \cdot \cos \beta = \frac{1}{2} (\cos(\alpha - \beta) + \cos(\alpha + \beta))$

Trijstūris		Viduslīnijas īpašība	
$S_{\Delta} = \frac{a \cdot h_a}{2} \quad S_{\Delta} = \frac{1}{2} ab \sin \gamma$ $S_{\Delta} = \frac{abc}{4R} \quad S_{\Delta} = p \cdot r$ $S_{\Delta} = \sqrt{p(p-a)(p-b)(p-c)}$		$ED = \frac{1}{2} BC$	
$a, b, c - \text{malas, } \alpha, \beta, \gamma - \text{leņķi, } r - \text{ievilktais riņķa līnijas rādiuss, } R - \text{apvilktais riņķa līnijas rādiuss, } p - \text{pusperimets, } h_a - \text{augstums pret malu } a$ $\frac{a}{\sin \alpha} = \frac{b}{\sin \beta} = \frac{c}{\sin \gamma} = 2R$ $R = \frac{a}{2 \sin \alpha}$ $a^2 = b^2 + c^2 - 2bc \cos \alpha$		Bisektrises īpašība $\frac{AD}{DC} = \frac{AB}{BC}$	
Taisnleņķa trijstūris $a, b - \text{katetes, } h_c - \text{augstums pret hipotenūzu, } a_c, b_c - \text{katešu projekcijas uz hipotenūzas}$ $h_c^2 = a_c \cdot b_c \quad a^2 = a_c \cdot c$ $b^2 = b_c \cdot c \quad \frac{a^2}{b^2} = \frac{a_c}{b_c}$		Līdzīgi trijstūri $\frac{AB}{A_1B_1} = \frac{AC}{A_1C_1} = \frac{BC}{B_1C_1} = \frac{P_{ABC}}{P_{A_1B_1C_1}} = k$ $\frac{S_{ABC}}{S_{A_1B_1C_1}} = k^2$	
Paralelograms $a, b - \text{malas, } d_1, d_2 - \text{diagonāles, } h_a - \text{augstums pret malu } a, \alpha - \text{leņķis}$ $2(a^2 + b^2) = d_1^2 + d_2^2$ $S = a \cdot h_a = ab \sin \alpha$		Regulārs trijstūris $a - \text{mala, } h - \text{augstums, } r - \text{ievilktais riņķa līnijas rādiuss, } R - \text{apvilktais riņķa līnijas rādiuss}$ $h = \frac{a\sqrt{3}}{2} \quad r = \frac{a\sqrt{3}}{6} \quad R = \frac{a\sqrt{3}}{3}$ $S = \frac{a^2\sqrt{3}}{4}$	
Regulāri n - stūri $a_n - \text{mala, } h_a - \text{apotēma, } r - \text{ievilktais riņķa līnijas rādiuss, } R - \text{apvilktais riņķa līnijas rādiuss, } P - \text{perimets}$ $S = \frac{1}{2} P \cdot h_a \quad a_n = 2R \cdot \sin \frac{180^\circ}{n}$ $a_n = 2r \cdot \operatorname{tg} \frac{180^\circ}{n}$		Trapece $a, b - \text{pamatu malas, } h - \text{augstums}$ $S = \frac{a+b}{2} \cdot h$	
Nogriežņi un leņķi, kas saistīti ar riņķa līniju  $\angle KLM = \frac{1}{2} \angle KOM$  $\angle BSA = \frac{1}{2} (\overset{\frown}{BA} + \overset{\frown}{CD})$ $AS \cdot SC = BS \cdot SD$		 $\angle FAD = \frac{1}{2} (\overset{\frown}{FD} - \overset{\frown}{EC})$ $\angle FBG = \frac{1}{2} \overset{\frown}{FB}$ $AE \cdot AF = AC \cdot AD$ $AB^2 = AC \cdot AD$	
Prizma $V = S_{\text{pam.}} \cdot H, H - \text{augstums}$		Konuss $R - \text{rādiuss, } l - \text{veidule, } H - \text{augstums, } \alpha - \text{sānu virsmas izklājuma centra leņķis (grādos)}$ $S_{\text{sānu}} = \pi \cdot R \cdot l \quad S_{\text{sānu}} = \frac{\pi \cdot l^2 \cdot \alpha}{360^\circ}$ $V = \frac{\pi \cdot R^2 \cdot H}{3}$	
Cilindrs $R - \text{rādiuss, } H - \text{augstums}$ $S_{\text{sānu}} = 2\pi \cdot R \cdot H$ $V = \pi \cdot R^2 \cdot H$		Ringis un riņķa līnija $R - \text{rādiuss, } l_\alpha - \text{garums lokam, kura centra leņķis ir } \alpha \text{ (grādos)}$ $C = 2 \cdot \pi \cdot R \quad l_\alpha = \frac{\pi \cdot R \cdot \alpha}{180^\circ}$ $S = \pi \cdot R^2 \quad S_{\text{sekt}} = \frac{\pi \cdot R^2 \cdot \alpha}{360^\circ}$	
Piramīda $h_s - \text{reg. pir. apotēma, } P - \text{pamata perimets, } \alpha - \text{reg. pir. divplakņu kakts pie pamata, } H - \text{augstums}$ $S_{\text{sānu.reg.}} = \frac{1}{2} P \cdot h_s = \frac{S_{\text{pam.}}}{\cos \alpha}$ $V = \frac{1}{3} S_{\text{pam.}} \cdot H$		Nošķeltis konuss $R_1, R_2 - \text{pamatu rādiusi, } l - \text{veidule, } H - \text{augstums}$ $S_{\text{sānu}} = \pi(R_1 + R_2) \cdot l$ $V = \frac{\pi \cdot H}{3} (R_1^2 + R_1 R_2 + R_2^2)$	
Nošķelta piramīda $P_1, P_2 - \text{pam. perimetri, } h_s - \text{reg. pir. apotēma, } H - \text{augstums, } S_1, S_2 - \text{pamatu laukumi}$ $S_{\text{sānu.reg.}} = \frac{1}{2} (P_1 + P_2) \cdot h_s$ $V = \frac{H}{3} (S_1 + S_2 + \sqrt{S_1 S_2})$		Lode un tās daļas $R - \text{rādiuss, } H - \text{segmenta augstums}$ $S_{\text{sf.virsm}} = 4 \cdot \pi \cdot R^2 \quad V_{\text{lode}} = \frac{4}{3} \pi \cdot R^3$ $S_{\text{sf.segm.virsm}} = 2 \cdot \pi \cdot R \cdot H$ $V_{\text{segmentam}} = \pi \cdot H^2 \left(R - \frac{H}{3} \right)$ $V_{\text{sekt.}} = \frac{2}{3} \pi \cdot R^2 \cdot H$	
		Vektori $A(x_1; y_1) \quad B(x_2; y_2)$ $\vec{AB} = (x_2 - x_1; y_2 - y_1)$ $\vec{a} = (a_x; a_y) \quad \vec{b} = (b_x; b_y)$ $\vec{a} \cdot \vec{b} = a_x b_x + a_y b_y$ $ \vec{a} = \sqrt{a_x^2 + a_y^2}$ $\vec{a} \cdot \vec{b} = \vec{a} \cdot \vec{b} \cdot \cos \alpha$	