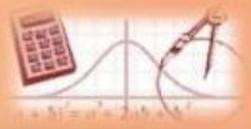


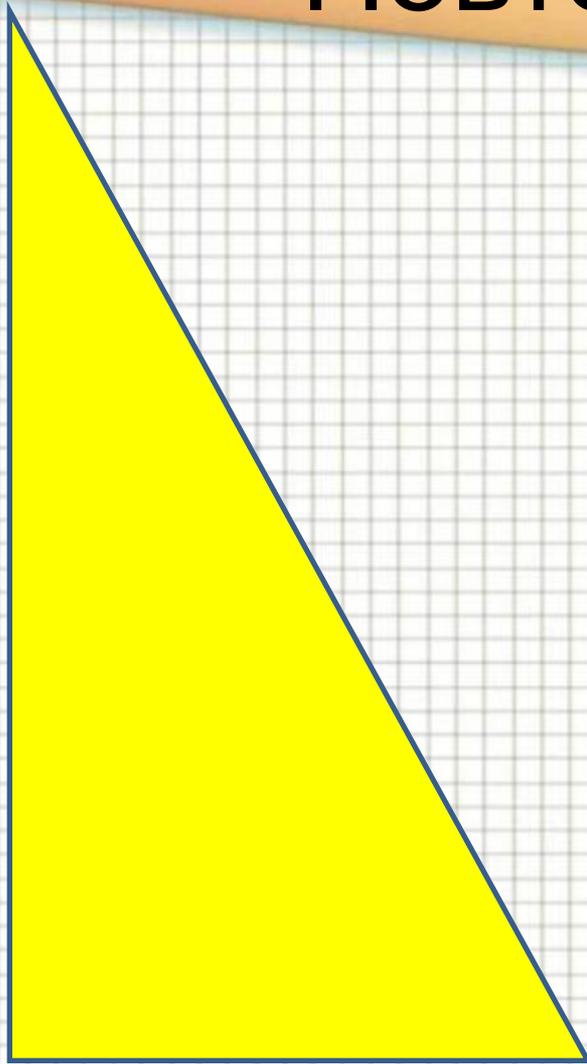


Синус, косинус и тангенс угла

Геометрия 9 класс
Шагаева Анна Борисовна

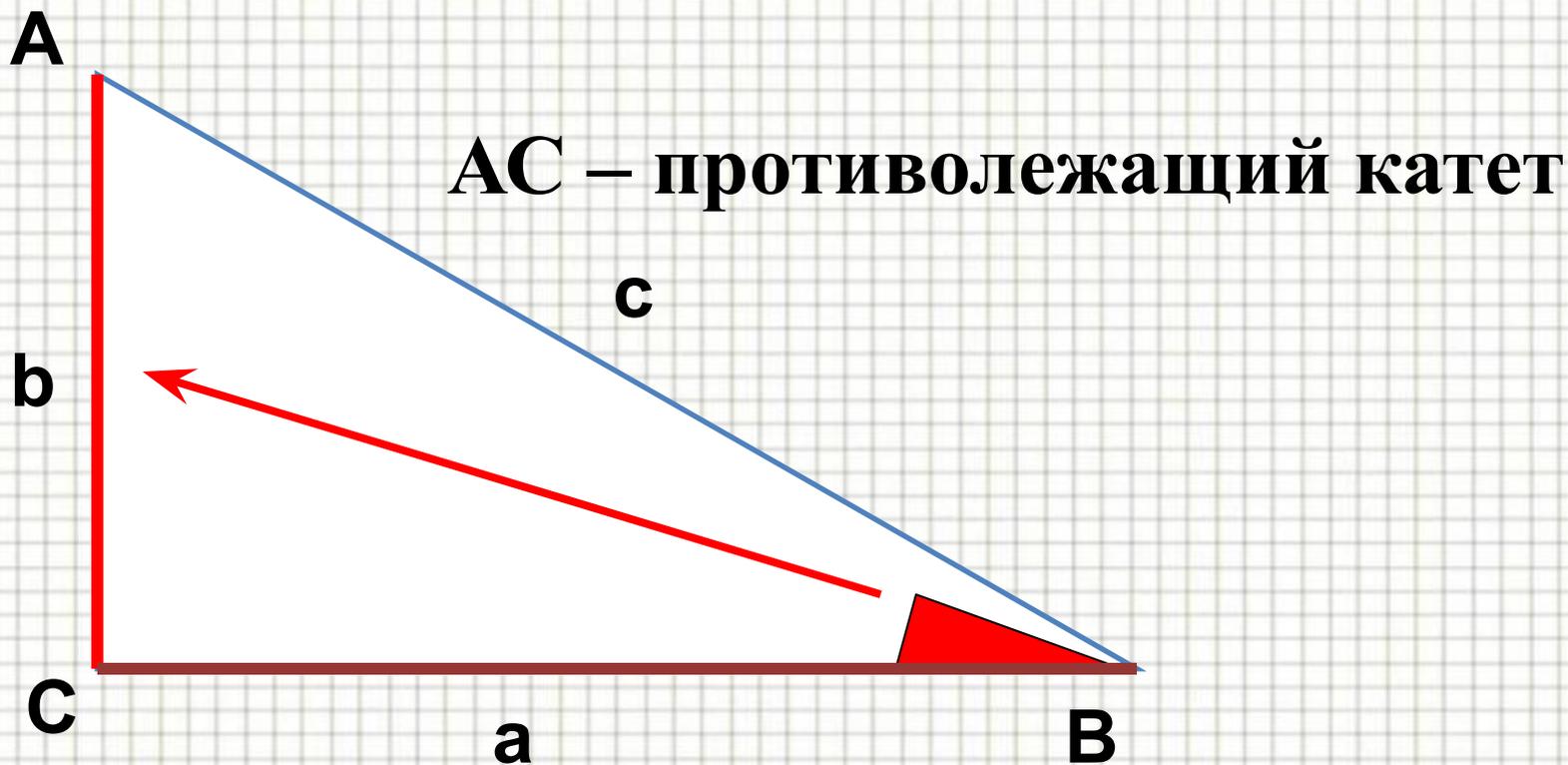


Повторяем

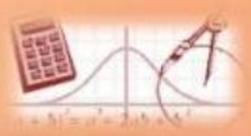




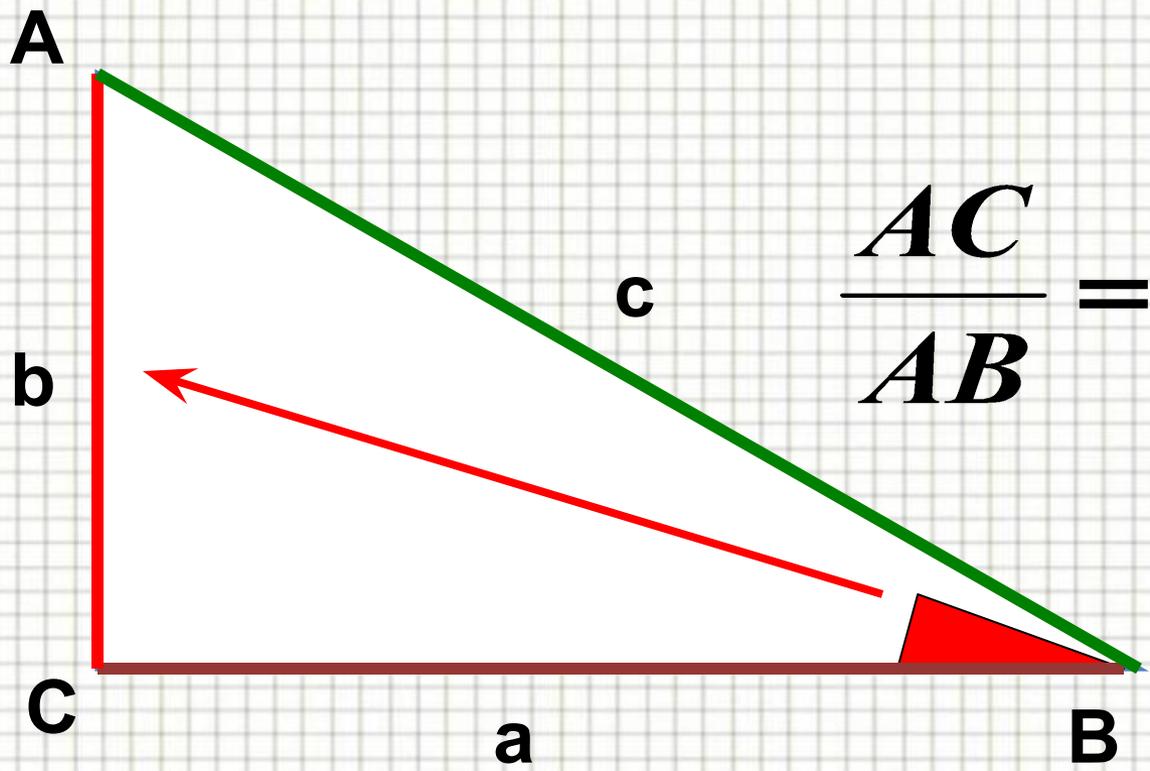
Расположение углов и сторон



BC – прилежащий катет

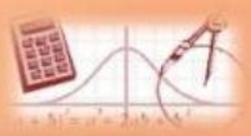


Отношение сторон

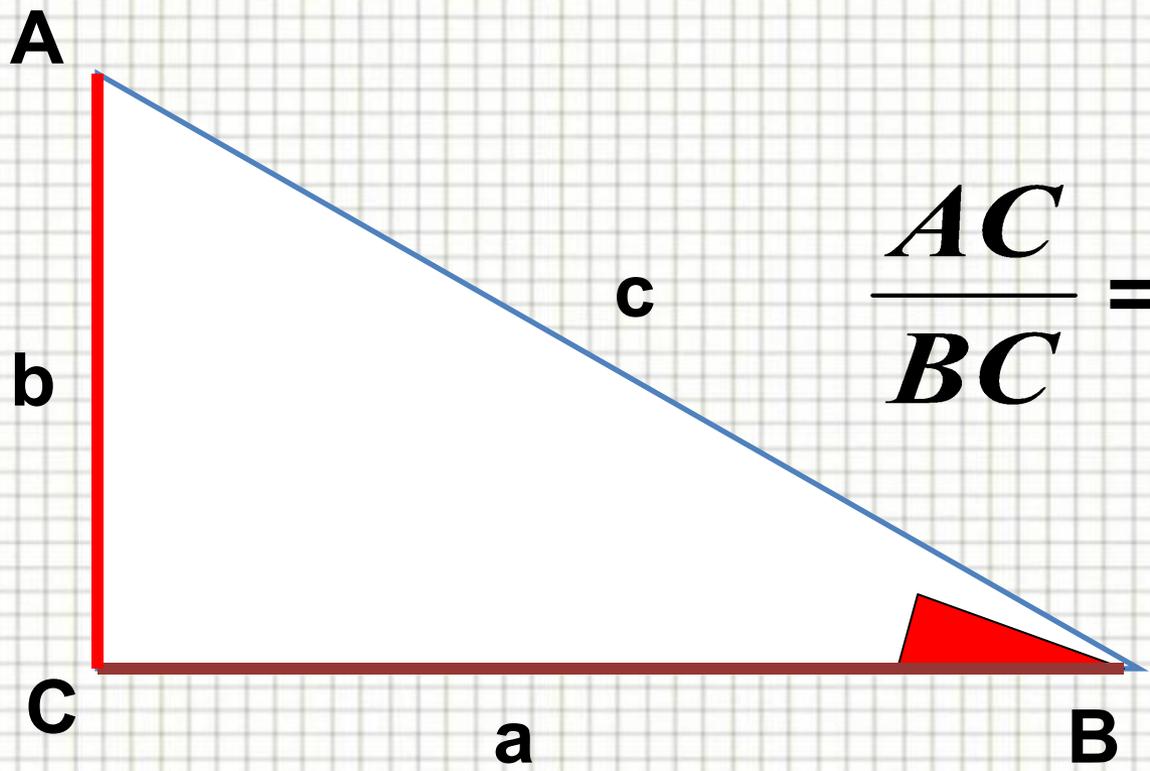


$$\frac{AC}{AB} = \frac{b}{c} = \sin B$$

$$\frac{BC}{AB} = \frac{a}{c} = \cos B$$

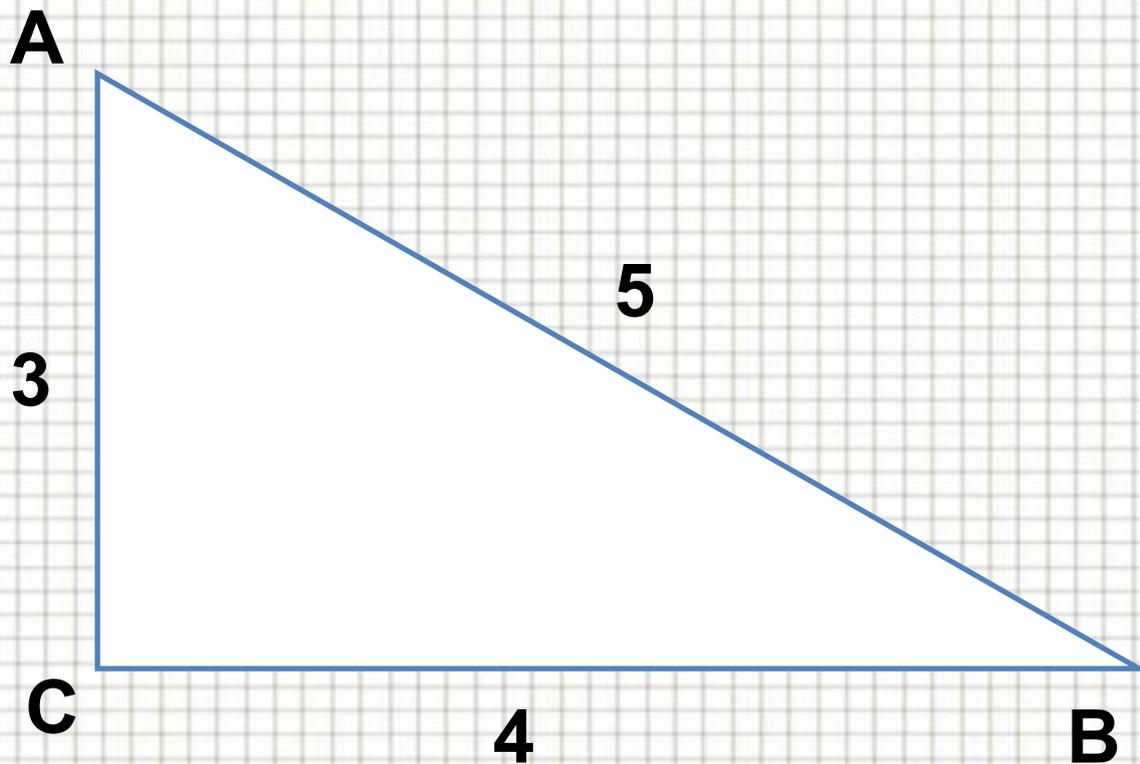


Отношение сторон



$$\frac{AC}{BC} = \frac{b}{a} = \text{tg}B$$

Найди синус, косинус, тангенс острых углов





Основные формулы

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

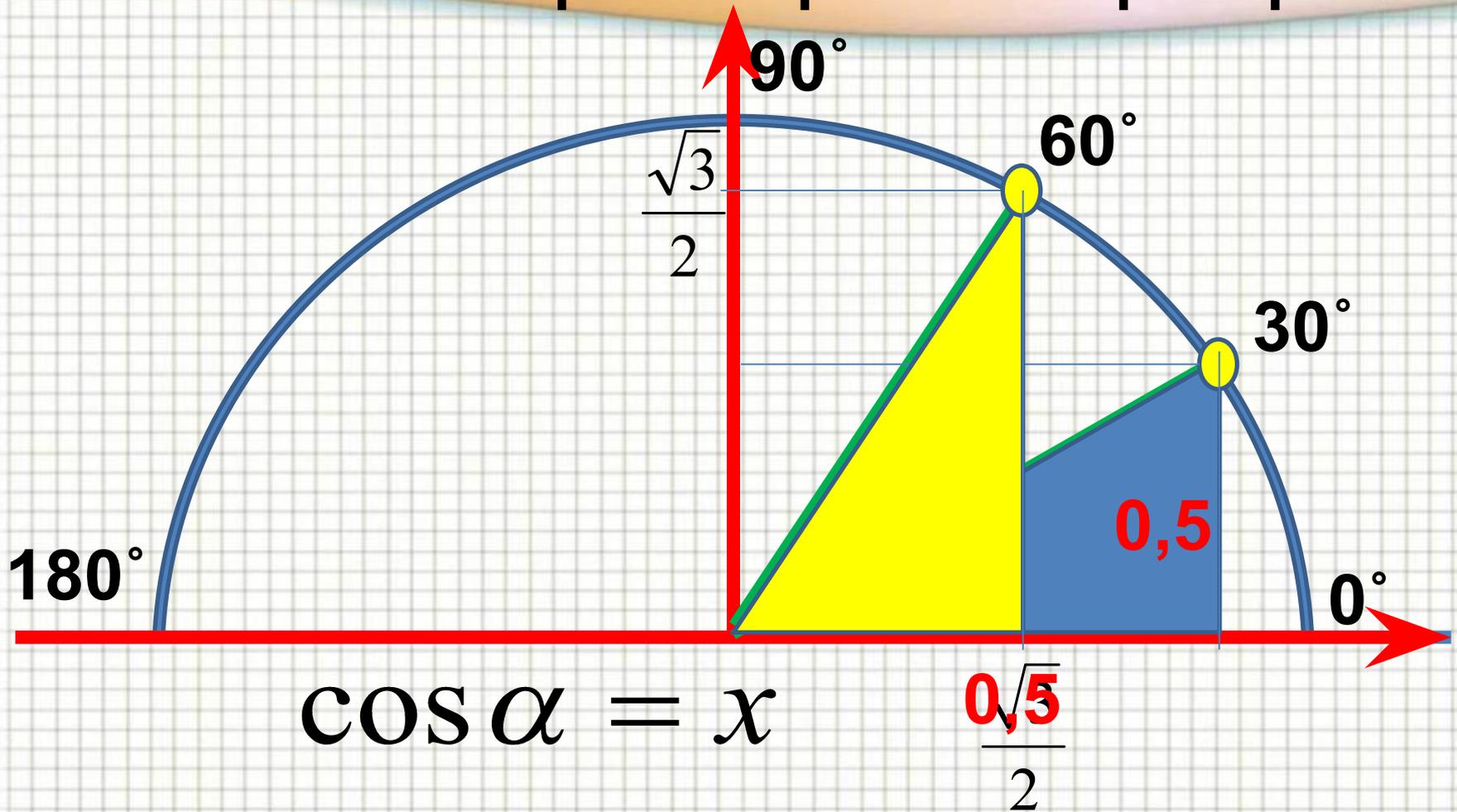
$$\sin^2 A + \cos^2 A = 1$$

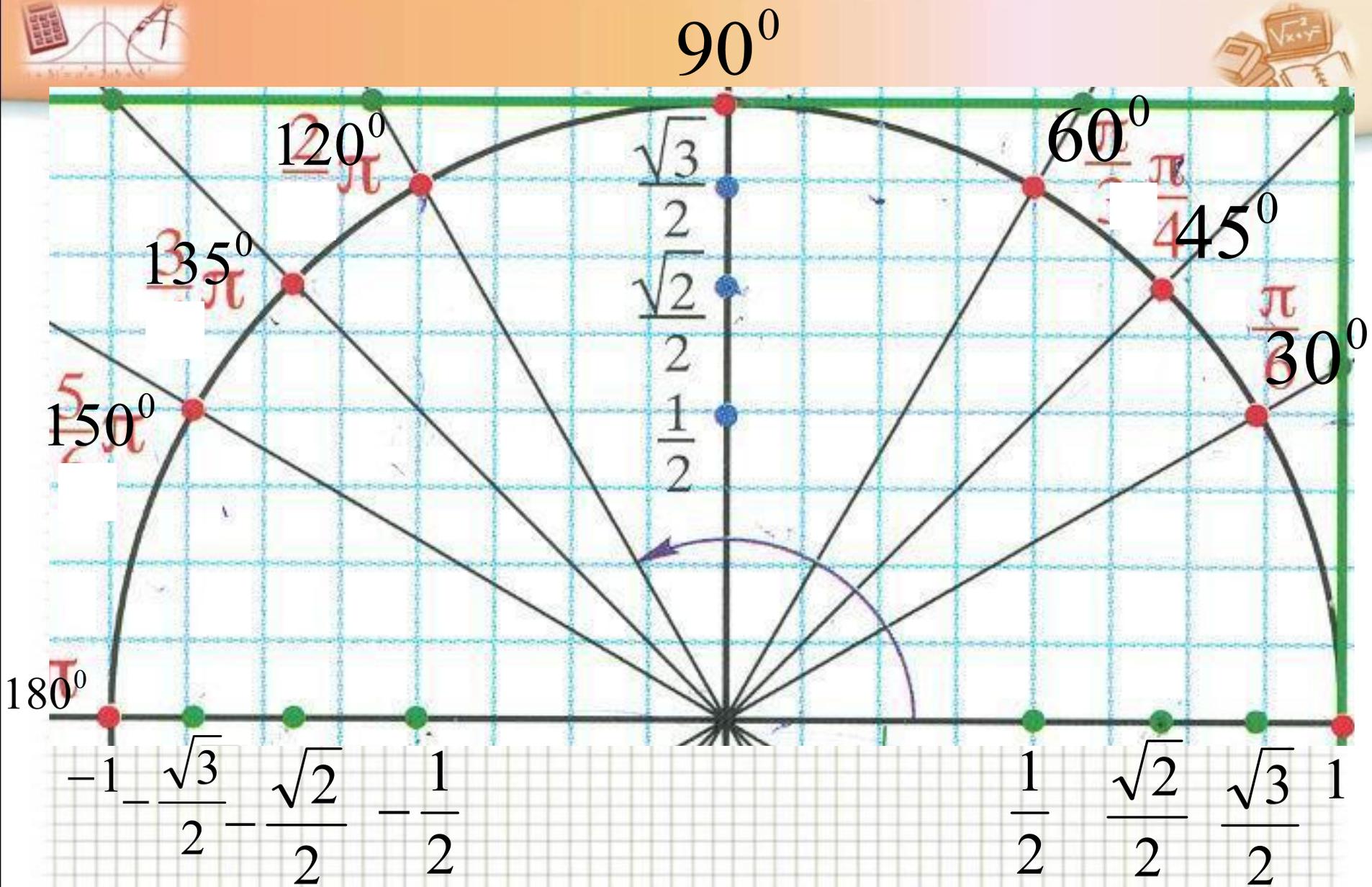
$$\sin \alpha = \frac{a}{c} = \frac{\text{противолежащий катет}}{\text{гипотенуза}}$$

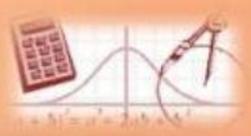
$$\cos \alpha = \frac{b}{c} = \frac{\text{прилежащий катет}}{\text{гипотенуза}}$$

$$\operatorname{tg} \alpha = \frac{a}{b} = \frac{\text{противолежащий катет}}{\text{прилежащий катет}}$$

Рассмотрим транспортир







Основные формулы



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

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

$$\sin \alpha = \frac{a}{c} \quad \cos \alpha = \frac{b}{c}$$

$$\operatorname{tg} \alpha = \frac{a}{b}$$

$$\operatorname{tg} \alpha = \frac{\sin \alpha}{\cos \alpha}$$

$$\sin \alpha = y$$

$$\cos \alpha = x$$



Найди координату, если точка лежит на единичной



полуокружности

$$A\left(\frac{1}{2}; x\right)$$

$$\cos \alpha = 1, \quad \sin \alpha = ?$$

$$\cos \alpha = 0, \quad \sin \alpha = ?$$

$$A\left(x; \frac{\sqrt{3}}{2}\right)$$

$$\cos \alpha = ?, \quad \sin \alpha = 0$$

$$\cos \alpha = ?, \quad \sin \alpha = \frac{1}{2}$$

$$A(0; x)$$

$$A(1; x)$$

$$\cos \alpha = \frac{\sqrt{3}}{2}, \quad \sin \alpha = ?$$



Вычисли

$$\sin 45^{\circ} = \frac{\sqrt{2}}{2}$$

$$\sin 60^{\circ} = \frac{\sqrt{3}}{2}$$

$$\cos 45^{\circ} = \frac{\sqrt{2}}{2}$$

$$\cos 60^{\circ} = \frac{1}{2}$$

$$\operatorname{tg} 45^{\circ} = 1$$

$$\operatorname{tg} 60^{\circ} = \sqrt{3}$$

$$\sin 30^{\circ} = \frac{1}{2}$$

$$\sin 150^{\circ} = \frac{1}{2}$$

$$\cos 30^{\circ} = \frac{\sqrt{3}}{2}$$

$$\cos 150^{\circ} = -\frac{\sqrt{3}}{2}$$

$$\operatorname{tg} 30^{\circ} = \frac{1}{\sqrt{3}}$$

$$\operatorname{tg} 150^{\circ} = -\frac{1}{\sqrt{3}}$$