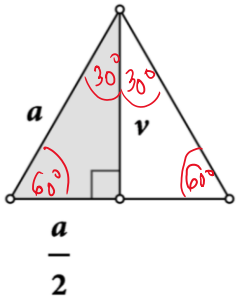
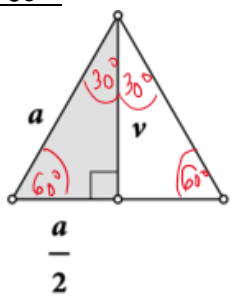
7.2. VRIJEDNOSTI TRIGONOMETRIJSKIH FUNKCIJA KUTA OD 30°,45° I 60°

Pogledajmo jednakostraničan trokut (svi kutovi su mu 60°), u njemu uočimo sivi pravokutan trokut



$$v_a = \sqrt{a^2 - \left(\frac{a}{2}\right)^2} = \sqrt{a^2 - \frac{a^2}{4}} = \sqrt{\frac{3a^2}{4}} = \frac{a\sqrt{3}}{2}$$

Kut 30°:



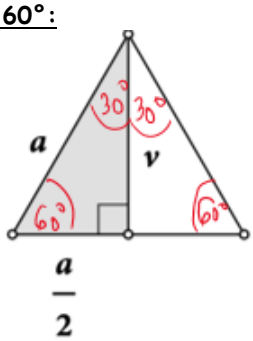
$$\sin 30° = \frac{\frac{a}{2}}{a} = \frac{a}{2a} = \frac{1}{2}$$

$$\cos 30° = \frac{\frac{\sqrt{3}a}{2}}{a} = \frac{\sqrt{3}a}{2a} = \frac{\sqrt{3}}{2}$$

$$tg30° = \frac{\frac{a}{2}}{\frac{\sqrt{3}a}{2}} = \frac{1}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}} = \frac{\sqrt{3}}{3}$$

$$ctg30° = \frac{\frac{\sqrt{3}a}{2}}{\frac{a}{2}} = \sqrt{3}$$

Kut 60°:



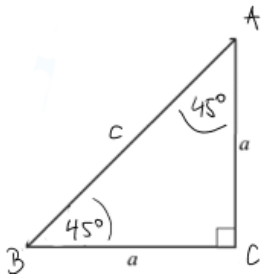
$$\sin 60° = \sin 30° = \frac{\sqrt{3}}{2}$$

$$\cos 60° = \cos 30° = \frac{1}{2}$$

$$tg60° = ctg30° = \sqrt{3}$$

$$ctg60° = tg30° = \frac{\sqrt{3}}{3}$$

Kut 45°:



$$c = \sqrt{a^2 + a^2} = a\sqrt{2}$$

$$\sin 45° = \frac{a}{a\sqrt{2}} = \frac{1}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} = \frac{\sqrt{2}}{2}$$

$$\cos 45° = \frac{a}{a\sqrt{2}} = \frac{1}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} = \frac{\sqrt{2}}{2}$$

$$tg\,45° == \frac{a}{a} = 1$$

$$ctg\,45° = \frac{a}{a} = 1$$

TABLICA:

	30°	**45°**	**60°**
sin	$\frac{1}{2}$	$\frac{\sqrt{3}}{2}$	$\frac{\sqrt{3}}{2}$
cos	$\frac{\sqrt{3}}{2}$	$\frac{\sqrt{3}}{2}$	$\frac{1}{2}$
tg	$\frac{\sqrt{3}}{3}$	1	$\sqrt{3}$
ctg	$\sqrt{3}$	1	$\frac{\sqrt{3}}{3}$