Ikeldilen argumentiň trigonometrik funksiýalary

Barlagnama:

1. $\cos(\alpha-\beta)=?$

a) $\cos\alpha\cos\beta-\sin\alpha\sin\beta$ b) $\cos\alpha\cos\beta+\sin\alpha\sin\beta$

ç) $\sin\alpha\cdot\cos\beta+\cos\alpha\cdot\sin\beta$ d) $\sin\alpha\cdot\cos\beta-\cos\alpha\cdot\sin\beta$

2. $\cos(\alpha+\beta)=?$

a) $\cos\alpha\cos\beta-\sin\alpha\sin\beta$ b) $\cos\alpha\cos\beta+\sin\alpha\sin\beta$

ç) $\sin\alpha\cdot\cos\beta+\cos\alpha\cdot\sin\beta$ d) $\sin\alpha\cdot\cos\beta-\cos\alpha\cdot\sin\beta$

3. $\sin(\alpha+\beta)=?$

a) $\cos\alpha\cos\beta-\sin\alpha\sin\beta$ b) $\cos\alpha\cos\beta+\sin\alpha\sin\beta$

ç) $\sin\alpha\cdot\cos\beta+\cos\alpha\cdot\sin\beta$ d) $\sin\alpha\cdot\cos\beta-\cos\alpha\cdot\sin\beta$

4. $\sin(\alpha-\beta)=?$

a) $\cos\alpha\cos\beta-\sin\alpha\sin\beta$ b) $\cos\alpha\cos\beta+\sin\alpha\sin\beta$

ç) $\sin\alpha\cdot\cos\beta+\cos\alpha\cdot\sin\beta$ d) $\sin\alpha\cdot\cos\beta-\cos\alpha\cdot\sin\beta$

5. $\mathrm{tg}(\alpha+\beta)=?$

a) $\dfrac{\mathrm{tg}\,\alpha+\mathrm{tg}\,\beta}{1-\mathrm{tg}\,\alpha\,\mathrm{tg}\,\beta}$ b) $\dfrac{\mathrm{tg}\,\alpha+\mathrm{tg}\,\beta}{1+\mathrm{tg}\,\alpha\,\mathrm{tg}\,\beta}$ ç) $\dfrac{\mathrm{tg}\,\alpha-\mathrm{tg}\,\beta}{1-\mathrm{tg}\,\alpha\,\mathrm{tg}\,\beta}$ d) $\dfrac{\mathrm{tg}\,\alpha-\mathrm{tg}\,\beta}{1+\mathrm{tg}\,\alpha\,\mathrm{tg}\,\beta}$

6. $\mathrm{tg}(\alpha-\beta)=?$

a) $\dfrac{\mathrm{tg}\,\alpha+\mathrm{tg}\,\beta}{1-\mathrm{tg}\,\alpha\,\mathrm{tg}\,\beta}$ b) $\dfrac{\mathrm{tg}\,\alpha+\mathrm{tg}\,\beta}{1+\mathrm{tg}\,\alpha\,\mathrm{tg}\,\beta}$ ç) $\dfrac{\mathrm{tg}\,\alpha-\mathrm{tg}\,\beta}{1-\mathrm{tg}\,\alpha\,\mathrm{tg}\,\beta}$ d) $\dfrac{\mathrm{tg}\,\alpha-\mathrm{tg}\,\beta}{1+\mathrm{tg}\,\alpha\,\mathrm{tg}\,\beta}$

7. $\mathrm{Ctg}(\alpha-\beta)=?$

a) $\dfrac{\mathrm{ctg}\,\alpha\,\mathrm{ctg}\,\beta+1}{\mathrm{ctg}\,\alpha+\mathrm{ctg}\,\beta}$ b $\dfrac{\mathrm{ctg}\,\alpha\,\mathrm{ctg}\,\beta-1}{\mathrm{ctg}\,\alpha-\mathrm{ctg}\,\beta}$ ç) $\dfrac{\mathrm{ctg}\,\alpha\,\mathrm{ctg}\,\beta+1}{\mathrm{ctg}\,\alpha-\mathrm{ctg}\,\beta}$ d) $\dfrac{\mathrm{ctg}\,\alpha\,\mathrm{ctg}\,\beta-1}{\mathrm{ctg}\,\alpha+\mathrm{ctg}\,\beta}$

8. $\mathrm{Ctg}(\alpha+\beta)=?$

a) $\dfrac{\mathrm{ctg}\,\alpha\,\mathrm{ctg}\,\beta+1}{\mathrm{ctg}\,\alpha+\mathrm{ctg}\,\beta}$ b $\dfrac{\mathrm{ctg}\,\alpha\,\mathrm{ctg}\,\beta-1}{\mathrm{ctg}\,\alpha-\mathrm{ctg}\,\beta}$ ç) $\dfrac{\mathrm{ctg}\,\alpha\,\mathrm{ctg}\,\beta+1}{\mathrm{ctg}\,\alpha-\mathrm{ctg}\,\beta}$ d) $\dfrac{\mathrm{ctg}\,\alpha\,\mathrm{ctg}\,\beta-1}{\mathrm{ctg}\,\alpha+\mathrm{ctg}\,\beta}$

1	2	3	4	5	6	7	8
b	a	ç	d	a	d	ç	d

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

Goý,β=α bolsun,onda

$$\sin 2\propto=\sin(\alpha+\alpha)=$$
$$=\sin\alpha\cdot\cos\alpha+\cos\alpha\cdot\sin\alpha=2\sin\alpha\cos\alpha$$

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

Goý,β=α bolsun,onda

$$\cos 2\propto=\cos(\alpha+\alpha)=$$
$$=\cos\alpha\cos\alpha-\sin\alpha\sin\alpha=\cos^2\alpha-\sin^2\alpha$$

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

$$\cos^2\alpha-\sin^2\alpha=\cos^2\alpha-\left(1-\cos^2\alpha\right)=\cos^2\alpha-1+\cos^2\alpha=$$
$$=2\cos^2\alpha-1$$

$$tg(\alpha+\beta)=\frac{tg\alpha+tg\beta}{1-tg\alpha\cdot tg\beta}$$

$$\beta=\alpha$$

$$tg(\alpha+\alpha)=\frac{tg\alpha+tg\alpha}{1-tg\alpha\cdot tg\alpha}$$

$$tg2\alpha=\frac{2tg\alpha}{1-tg^2\alpha}$$

$$Berlen \;\; \cos x = 0{,}8; \;\; 0 < x < \frac{\pi}{2}. \; Tapmaly: \sin 2x$$

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

$$\sin^2 x = 1 - \cos^2 x$$

$$\sin x = \pm\sqrt{1 - \cos^2 x} = \pm\sqrt{1 - 0{,}8^2} =$$

$$= \pm\sqrt{1 - 0{,}64} = \pm\sqrt{0{,}36} = \pm 0{,}6$$

$$\sin x = 0{,}6$$

$$\sin 2x = 2\sin x \cdot \cos x = 2 \cdot 0{,}8 \cdot 0{,}6 = 0{,}96$$

Aňlatmany ýönekeýleşdiriň: $\dfrac{\sin 40^\circ}{\sin 20^\circ}$

$$\frac{\sin 40^\circ}{\sin 20^\circ} = \frac{\sin(2 \cdot 20^\circ)}{\sin 20^\circ} = \frac{2\sin 20^\circ \cdot \cos 20^\circ}{\sin 20^\circ} = 2\cos 20^\circ$$

Temany berkitmek:

103-nji gönükme.

$$\cos\alpha = \frac{1}{2} \; we \; 0 < \alpha < \frac{\pi}{2} \; bolsa, onda \; \sin 2\alpha, \cos 2\alpha, \operatorname{tg} 2\alpha \; hasaplaň$$

$$\sin\alpha = \pm\sqrt{1-\cos^2\alpha} = \pm\sqrt{1-\left(\frac{1}{2}\right)^2} = \pm\sqrt{1-\frac{1}{4}} = \pm\sqrt{\frac{3}{4}} = \pm\frac{\sqrt{3}}{2}$$

$$0 < \alpha < \frac{\pi}{2}, \text{ onda } \sin\alpha = \frac{\sqrt{3}}{2}$$

$$\sin 2\alpha = 2\sin\alpha\cos\alpha = 2\cdot\frac{\sqrt{3}}{2}\cdot\frac{1}{2} = \frac{\sqrt{3}}{2}$$

$$\cos 2\alpha = \cos^2\alpha - \sin^2\alpha = \left(\frac{1}{2}\right)^2 - \left(\frac{\sqrt{3}}{2}\right)^2 = \frac{1}{4} - \frac{3}{4} = -\frac{2}{4} = -\frac{1}{2}$$

$$tg\, 2\alpha = \frac{\sin 2\alpha}{\cos 2\alpha} = \frac{\frac{\sqrt{3}}{2}}{-\frac{1}{2}} = -\sqrt{3}$$

106-njy gönükme.

a) $$\frac{(sin\propto+cos\propto)^2}{1+sin2\propto}=\frac{sin^2\alpha+2sin\propto cos\propto+cos^2\alpha}{1+sin2\propto}=$$

$$=\frac{1+sin2\propto}{1+sin2\propto}=1$$

b) $$\frac{cos2\propto}{sin\propto+cos\propto}=\frac{cos^2\alpha-sin^2\alpha}{sin\propto+cos\propto}=$$

$$=\frac{(cos\propto+sin\propto)\cdot(cos\propto-sin\propto)}{sin\propto+cos\propto}=cos\propto-sin\propto$$

Öý işi

- 107-nji gönükme.