

1. Спростіть вираз:

1.1. $1 - \cos^2 \alpha =$

1.2. $5 + \operatorname{tg} \beta \operatorname{ctg} \beta = 5 + \quad =$

1.3. $\sin \gamma \cdot \operatorname{ctg} \gamma = \sin \gamma \cdot \text{---} =$

2. Обчисліть:

2.1. $\sin 240^\circ = \sin(\quad) = \quad^\circ =$

2.2. $\cos \frac{13\pi}{6} = \cos(\quad) = \quad^\circ =$

2.3. $\operatorname{ctg} 300^\circ = \operatorname{ctg}(\quad) = \quad^\circ =$

α	0	$\frac{\pi}{6}$	$\frac{\pi}{4}$	$\frac{\pi}{3}$	$\frac{\pi}{2}$
	0°	30°	45°	60°	90°
$\sin \alpha$	0	$\frac{1}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{3}}{2}$	1
$\cos \alpha$	1	$\frac{\sqrt{3}}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{1}{2}$	0

α	0	$\frac{\pi}{6}$	$\frac{\pi}{4}$	$\frac{\pi}{3}$	$\frac{\pi}{2}$
	0°	30°	45°	60°	90°
$\operatorname{tg} \alpha$	0	$\frac{1}{\sqrt{3}}$	1	$\sqrt{3}$	—
$\operatorname{ctg} \alpha$	—	$\sqrt{3}$	1	$\frac{1}{\sqrt{3}}$	0

3. Спростіть вираз

$$\frac{\sin(-\alpha)}{1 - \cos(-\alpha)} + \frac{\cos\left(\frac{\pi}{2} - \alpha\right)}{1 + \cos \alpha} = \frac{\text{---}}{1} + \frac{\text{---}}{1 + \cos \alpha} =$$
$$= \frac{-2}{(\text{---}) \cdot (1 + \cos \alpha)} = \frac{-2}{\text{---}} = -2.$$