

$$\text{ctg } 135^\circ = \text{ctg}(180^\circ - 45^\circ) = -\text{ctg } 45^\circ = -1$$

$$\text{tg } 210^\circ = \text{tg}(180^\circ + 30^\circ) = \text{tg } 30^\circ = \frac{\sqrt{3}}{3}$$

$$\frac{\sin 75^\circ \cdot \cos 390^\circ \cdot \text{tg } 1140^\circ}{\text{ctg } 405^\circ \cdot \sin 1860^\circ \cdot \cos 780^\circ} = \frac{\frac{1}{2} \cdot \frac{\sqrt{3}}{2} \cdot \sqrt{3}}{1 \cdot \frac{\sqrt{3}}{2} \cdot \frac{1}{2}} = \frac{\frac{3}{4}}{\frac{\sqrt{3}}{4}} = \frac{3}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}} = \frac{3\sqrt{3}}{3} = \underline{\underline{\sqrt{3}}}$$

$$\sin 75^\circ = \sin(72^\circ + 3^\circ) = \sin 30^\circ = \frac{1}{2}$$

$$\cos 390^\circ = \cos(360^\circ + 30^\circ) = \cos 30^\circ = \frac{\sqrt{3}}{2}$$

$$\text{tg } 1140^\circ = \text{tg}(1080^\circ + 60^\circ) = \text{tg } 60^\circ = \sqrt{3}$$

$$\text{ctg } 405^\circ = \text{ctg}(360^\circ + 45^\circ) = \text{ctg } 45^\circ = 1$$

$$\sin 1860^\circ = \sin(5 \cdot 360^\circ + 60^\circ) = \sin 60^\circ = \frac{\sqrt{3}}{2}$$

$$\cos 780^\circ = \cos(720^\circ + 60^\circ) = \cos 60^\circ = \frac{1}{2}$$

$$\frac{\cos \frac{17\pi}{6} \cdot \sin \frac{7\pi}{3} \cdot \text{tg } \frac{17\pi}{4}}{\text{ctg } \frac{10\pi}{3} \cdot \cos \frac{7\pi}{4} \cdot \sin \frac{8\pi}{3}} = \frac{\frac{\sqrt{3}}{2} \cdot \frac{\sqrt{3}}{2} \cdot 1}{\frac{\sqrt{3}}{3} \cdot \frac{\sqrt{2}}{2} \cdot (-\frac{\sqrt{3}}{2})} = \frac{\frac{3}{4}}{-\frac{3\sqrt{2}}{12}} = -\frac{12 \cdot 3}{12 \cdot \sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} = \underline{\underline{-\frac{3\sqrt{2}}{2}}}$$

$$\cos \frac{17\pi}{6} = \cos(3\pi - \frac{\pi}{6}) = \cos \frac{\pi}{6} = \frac{\sqrt{3}}{2}$$

$$\sin \frac{7\pi}{3} = \sin(2\pi + \frac{\pi}{3}) = \sin \frac{\pi}{3} = \frac{\sqrt{3}}{2}$$

$$\text{tg } \frac{17\pi}{4} = \text{tg}(4\pi + \frac{\pi}{4}) = \text{tg } \frac{\pi}{4} = 1$$

$$\text{ctg } \frac{10\pi}{3} = \text{ctg}(3\pi + \frac{\pi}{3}) = \text{ctg } \frac{\pi}{3} = \frac{\sqrt{3}}{3}$$

$$\cos \frac{7\pi}{4} = \cos(2\pi - \frac{\pi}{4}) = \cos \frac{\pi}{4} = \frac{\sqrt{2}}{2}$$

$$\sin \frac{8\pi}{3} = \sin(3\pi - \frac{\pi}{3}) = -\sin \frac{\pi}{3} = -\frac{\sqrt{3}}{2}$$

ЗАДАЧА 150: (5 min)

Знайти: $\text{tg}(-\frac{\pi}{4})$; $\text{ctg}(-150^\circ)$; $\text{ctg } \frac{5\pi}{3}$; $\text{tg } \frac{11\pi}{6}$; $\sin \frac{17\pi}{6}$; $\text{ctg } \frac{17\pi}{4}$