Zadatak 2. Koliko je:

1) $\cos\frac{3\pi}{5}\cdot\cos\frac{7\pi}{5}-\sin\frac{3\pi}{5}\cdot\sin\frac{7\pi}{5}$;

2) $\cos\frac{7\pi}{8}\cdot\cos\frac{3\pi}{8}+\sin\frac{7\pi}{8}\cdot\sin\frac{3\pi}{8}$;

3) $\sin\frac{12\pi}{7}\cdot\sin\frac{9\pi}{7}-\cos\frac{12\pi}{7}\cdot\cos\frac{9\pi}{7}$;

4) $\sin\frac{11\pi}{12}\cdot\sin\frac{17\pi}{12}-\cos\frac{11\pi}{12}\cdot\cos\frac{17\pi}{12}$?

Rješenje.

1) $\cos\frac{3\pi}{5}\cdot\cos\frac{7\pi}{5}-\sin\frac{3\pi}{5}\cdot\sin\frac{7\pi}{5}=\cos\left(\frac{3\pi}{5}+\frac{7\pi}{5}\right)=\cos 2\pi=1$;

2) $\cos\frac{7\pi}{8}\cdot\cos\frac{3\pi}{8}+\sin\frac{7\pi}{8}\cdot\sin\frac{3\pi}{8}=\cos\left(\frac{7\pi}{8}-\frac{3\pi}{8}\right)=\cos\frac{\pi}{2}=0$;

3) $\sin\frac{12\pi}{7}\cdot\sin\frac{9\pi}{7}-\cos\frac{12\pi}{7}\cdot\cos\frac{9\pi}{7}=-\left(\cos\frac{12\pi}{7}\cdot\cos\frac{9\pi}{7}-\sin\frac{12\pi}{7}\cdot\sin\frac{9\pi}{7}\right)=-\cos\left(\frac{12\pi}{7}+\frac{9\pi}{7}\right)=-\cos\frac{21\pi}{7}=-\cos 3\pi=-(-1)=1$;

4) $\sin\frac{11\pi}{12}\cdot\sin\frac{17\pi}{12}-\cos\frac{11\pi}{12}\cdot\cos\frac{17\pi}{12}=-\left(\cos\frac{11\pi}{12}\cdot\cos\frac{17\pi}{12}-\sin\frac{11\pi}{12}\cdot\sin\frac{17\pi}{12}\right)=-\cos\frac{28\pi}{12}=-\cos\frac{7\pi}{3}=-\cos\frac{\pi}{3}=-\frac{1}{2}$.