

Equations of the form $\cos(x) = b$

Homework

№1. Solve the following equations:

1. $\cos 2x = \frac{1}{2};$
2. $\cos \frac{x}{5} = -\frac{\sqrt{3}}{2};$
3. $\cos \frac{3x}{4} = -1;$
4. $\cos \left(\frac{\pi}{9} - 4x \right) = 1;$
5. $\sqrt{2} \cos \left(\frac{x}{2} + 3 \right) + 1 = 0.$

№2. Find the smallest positive root of the equation $\cos \frac{x}{4} = -\frac{\sqrt{2}}{2}$.

№3. Find all roots of the equation $\cos \left(x + \frac{\pi}{12} \right) = -\frac{1}{2}$ which satisfy the inequality $-\frac{\pi}{6} < x < 4\pi$.

№4. Solve the following equations:

1. $\cos \frac{2\pi}{\sqrt{x}} = \frac{\sqrt{2}}{2};$
2. $\cos (\cos x) = \frac{\sqrt{2}}{2}.$