

At what point the graph of $f(x) = 2 \cos x - 1$ intersects the x -axis?

Solution.

So we must find coordinates of a point in the form $(x, 0)$, that is we must find x :

$$f(x) = 2 \cos x - 1 = 0$$

Solve this equation:

$$2 \cos x = 1$$

$$\cos x = \frac{1}{2}$$

$$x = \pm \arccos \frac{1}{2} + 2\pi k, \quad k \in \mathbb{Z}$$

$$x = \pm \frac{\pi}{3} + 2\pi k, \quad k \in \mathbb{Z}$$

Answer:

$$\left(-\frac{\pi}{3} + 2\pi k, 0\right), \left(\frac{\pi}{3} + 2\pi k, 0\right), \quad k \in \mathbb{Z}$$