

Find all possible solution for the equation  $\cos 3x = (1/2)$

$$3x = \arccos (1/2)$$

and since  $\arccos (1/2) = 60$  degrees

$$3x = 60 \text{ degrees}$$

and solving for "x"

$$x = 20 \text{ degrees}$$

Or, if you want to represent it in radians, then

$$x = 20 * (\pi/180)$$

$$x = \pi/9$$

NOTE further that the cosine of an angle is positive in the first and fourth quadrants. Technically, you will have 2 values for "x" which are:

$$x = 20 \text{ deg} = \pi/9 \text{ (located in the first quadrant)}$$

and

$$x = 270 + 20 = 290 \text{ degrees}$$

or

$$x = (3\pi/2) + \pi/9 = (27\pi + 2\pi)/18$$

$$x = 29\pi/18$$