

TRIGONOMETRY EXAMPLE 4

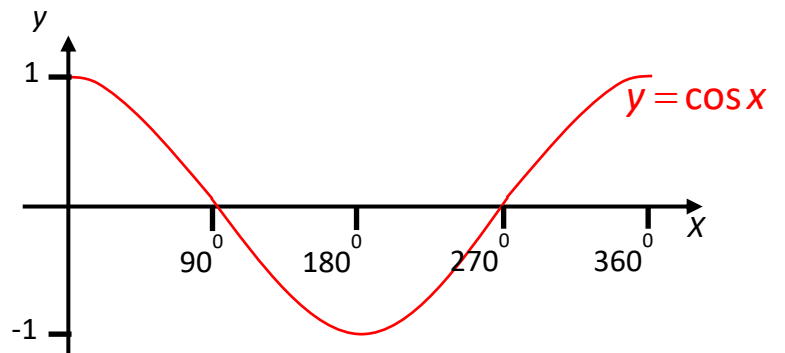
Which one of the following is true?

- A. $\cos 90^\circ > 2\cos 45^\circ$ B. $\cos 90^\circ = 2\cos 45^\circ$
 C. $\cos 90^\circ = \frac{1}{2}\cos 45^\circ$ D. $\cos 90^\circ < 2\cos 45^\circ$

SOLUTION

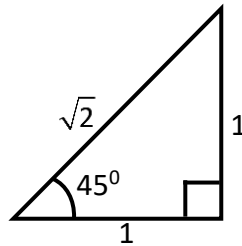
We know that $\cos 90^\circ = 0$.

Here's the graph of $y = \cos x$.



Also $\cos 45^\circ = \frac{1}{\sqrt{2}} = \frac{\sqrt{2}}{2}$

$$\therefore 2\cos 45^\circ = \sqrt{2}$$



But we know that $0 < \sqrt{2}$

$$\therefore \cos 90^\circ < 2\cos 45^\circ$$

So, the correct answer is D.