

Answer on Question # 41414– Math - Trigonometry

Question:

Given the function value and quadrant restriction, find θ .

$\cos\theta = .6561$, interval $(270^\circ, 360^\circ)$

$\theta \approx \underline{\quad}^\circ$

Solution:

Trigonometric equation $\cos \theta = a$ has such general solution

$$\theta = \pm \arccos a + 2\pi k, k \in \mathbb{Z}.$$

For $a = 0.6561$, $\arccos 0.6561 \approx 49^\circ$. As we need a solution from the interval $(270^\circ, 360^\circ)$. Using general solution we can take $\theta = -\arccos a + 2\pi = -49^\circ + 360^\circ = 311^\circ$.

Answer: $\theta \approx 311^\circ$.