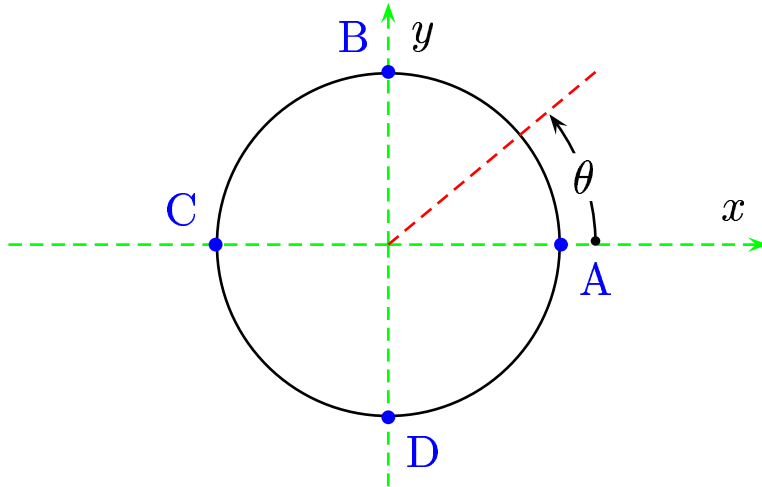


Consider a “Simple Harmonic Motion” (SHM) $x = A \cos \theta$, as a projection of a uniform circular motion with $\theta = \omega t + \phi$.



At $t = 0$, $x = 0$ and $v = v_0 > 0$, determine ϕ .

- A) At A, $\phi = 0^\circ$.
- B) At B, $\phi = 90^\circ$.
- C) At C, $\phi = 180^\circ$.
- D) At D, $\phi = 270^\circ$.

Since $x = 0$, we may choose either B or D.
Notice at B, the velocity is along the negative x -direction.
But at D, the velocity is along the positive x -direction.
So D is the correct choice, *i.e.* at $t = 0$, $\theta = \phi = 270^\circ$.
Answer **D**.