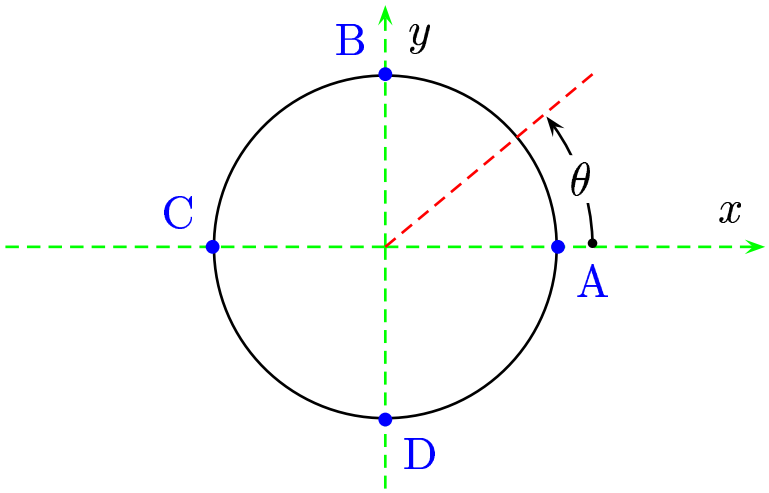
Consider a "Simple Harmonic Motion" (SHM) $x = A\cos\theta$, as a projection of a uniform circular motion with $\theta = \omega t + \phi$.



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

A) At A, $\phi = 0°$.

B) At B, $\phi = 90°$.

C) At C, $\phi = 180°$.

D) At D, $\phi = 270°$.

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** .