

MX
SP**1**What is the angle between the vectors $\begin{pmatrix} 7 \\ 1 \end{pmatrix}$ and $\begin{pmatrix} -1 \\ 1 \end{pmatrix}$?**1**

A. $\cos^{-1}(0.6)$

B. $\cos^{-1}(0.06)$

C. $\cos^{-1}(-0.06)$

D. $\cos^{-1}(-0.6)$

DLet $\vec{u} = \begin{pmatrix} 7 \\ 1 \end{pmatrix}$ and $\vec{v} = \begin{pmatrix} -1 \\ 1 \end{pmatrix}$:

$$\begin{aligned}\cos \theta &= \frac{\vec{u} \cdot \vec{v}}{\|\vec{u}\| \|\vec{v}\|} \\ &= \frac{7 \times (-1) + 1 \times 1}{\sqrt{7^2 + 1^2} \cdot \sqrt{1^2 + 1^2}} \\ &= \frac{-6}{\sqrt{50} \cdot \sqrt{2}} \\ &= -0.6 \\ \therefore \theta &= \cos^{-1}(-0.6)\end{aligned}$$

* These solutions have been provided by [projectmaths](http://projectmaths.com.au) and are not supplied or endorsed by NESA.

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