p 218, q1

There are two ways to solve the initial part of the question.

1) use a calculator & apply the invers cos function, also known as arccos

$$\theta = \arccos \frac{\sqrt{3}}{2}$$

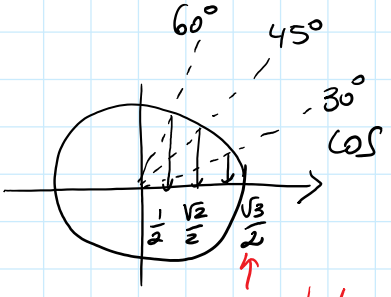
$$= \cos^{-1} \frac{\sqrt{3}}{2}$$

$$= 30^\circ = \frac{\pi}{6}$$

2) recognize that $\frac{\sqrt{3}}{2}$ is a know value

This method is usefull when a calaulator is not available

known values in th unit circle

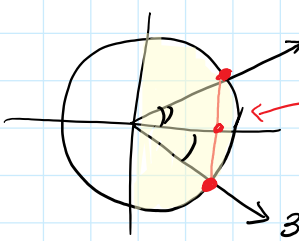


this belongs to $\cos 30^\circ = \cos \frac{\pi}{6}$

from here we can conclude that the angle we are looking for is $30^\circ = \frac{\pi}{6}$

In both cases we find $\frac{\pi}{6}$ to be the angle, but this is not given as one of the response options. Therefore it must be either a rotation of $\frac{\pi}{6}$ or a symmetry of $\frac{\pi}{6}$ in the right-hemisphere as follows;

right - hemisphere as follows:



→ symmetry gives us $11\frac{\pi}{6}$

→ rotation gives us

$$\frac{\pi}{6} + 2\pi = \frac{\pi}{6} + \frac{6(2\pi)}{6} =$$
$$= \frac{13\pi}{6}$$

of these two possibilities only $11\frac{\pi}{6}$ is given

thus the answer is option D. ✓