13 **(a)** You are given that $\sin\theta\cos\left(\frac{1}{3}\pi\right)+\sin\left(\frac{1}{3}\pi\right)\cos\theta=\frac{1}{\sqrt{2}}$ and $0<\theta<\pi$.

Determine the exact value of θ. **[3]**

(b) Write your answer to part **(a)** in degrees. **[1]**