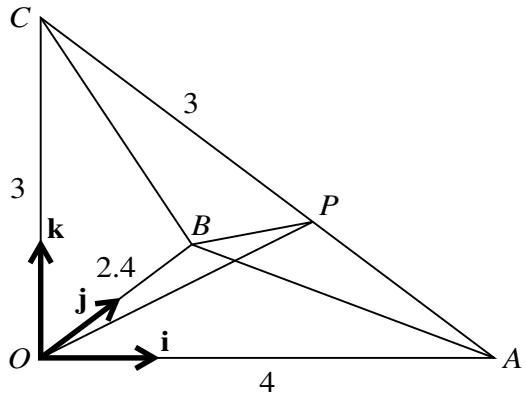
**7**




The diagram shows a pyramid $OABC$ with a horizontal triangular base $OAB$ and vertical height $OC$. Angles $AOB$, $BOC$ and $AOC$ are each right angles. Unit vectors **i**, **j** and **k** are parallel to $OA$, $OB$ and $OC$ respectively, with $OA = 4$ units, $OB = 2.4$ units and $OC = 3$ units. The point $P$ on $CA$ is such that $CP = 3$ units.

**(i)** Show that $\overrightarrow{CP} = 2.4\mathbf{i} - 1.8\mathbf{k}$. [2]

**(ii)** Express $\overrightarrow{OP}$ and $\overrightarrow{BP}$ in terms of **i**, **j** and **k**. [2]

**(iii)** Use a scalar product to find angle $BPC$. [4]