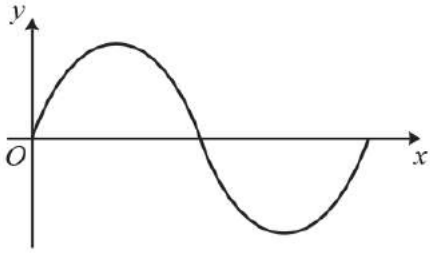
8 **(a)** **Figure 1** shows part of the curve $y = a \sin bx$, where $x$ is in radians, and $a$ and $b$ are positive constants. The maximum point on this part of the curve is at $(\pi, 3)$.

**Figure 1**

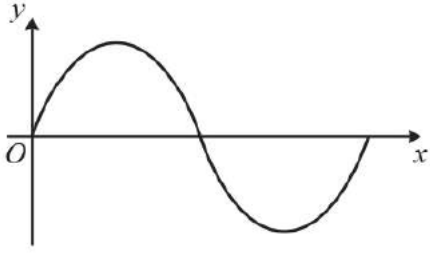



**(i)** State the coordinates of the minimum point on this part of the curve. **[2]**

**(ii)** Find the values of $a$ and $b$. **[2]**

**(b)** **Figure 2** shows part of a different curve, $y = p \sin qx$, where $x$ is in radians, and $p$ and $q$ are positive constants.

**Figure 2**




**(i)** On the copy of **Figure 2** in the **Printed Answer Booklet** sketch the curve $y = p \cos qx$, for the same domain of $x$. **[2]**

**(ii)** Determine the $x$-coordinates of the points of intersection of the part of the curve $y = p \sin qx$ shown in **Figure 2** and $y = p \cos qx$. Give your answers in an exact form in terms of $p$ and/or $q$. **[4]**