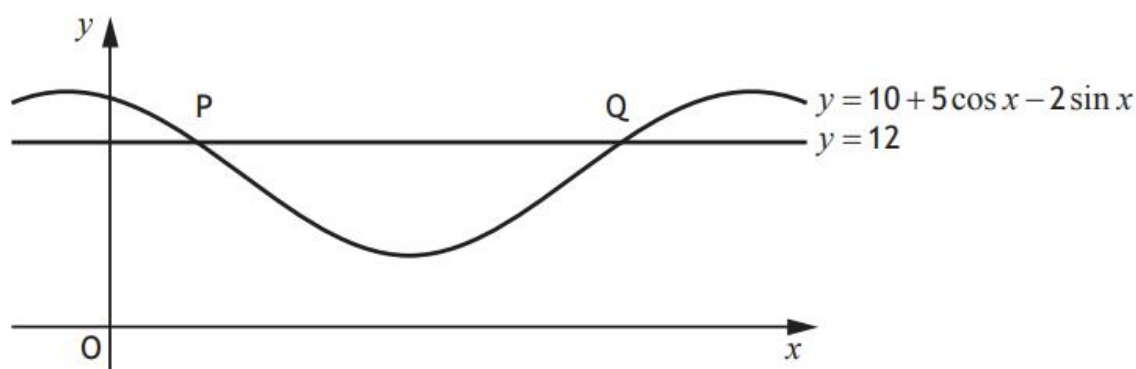(a) Express $5\cos x - 2\sin x$ in the form $k\cos(x+a)$, where $k>0$ and $0<a<2\pi$. **4**

(b) The diagram shows a sketch of part of the graph of $y = 10 + 5\cos x - 2\sin x$ and the line with equation $y = 12$.

The line cuts the curve at the points P and Q.

Find the x-coordinates of P and Q. **4**

Answers:

(a) $\sqrt{29}\cos(x+0\cdot38)$

(b) $x_P = 0.8097\ldots$

$x_Q = 4.712\ldots$