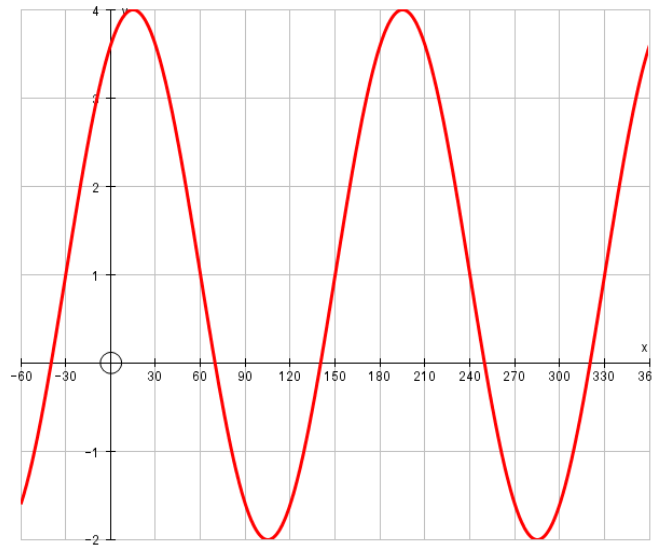


Higher Maths: Trigonometry

Please attempt the following questions in preparation for the online session on 18th January.

Q1

The diagram shows part of the function $y = a \sin(bx + c) + d$.
What are the values of a , b , c and d ?



Q2

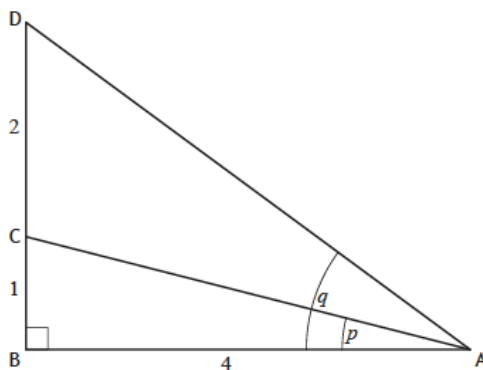
Solve $5 \sin x - 4 = 2 \cos 2x$ for $0 \leq x < 2\pi$.

Q3

Show that $\frac{\sin 2x}{2 \cos x} - \sin x \cos^2 x = \sin^3 x$, where $0 < x < \frac{3\pi}{2}$.

Q4

The triangle ABD is right-angled with angles $BAC = p$ and $BAD = q$.

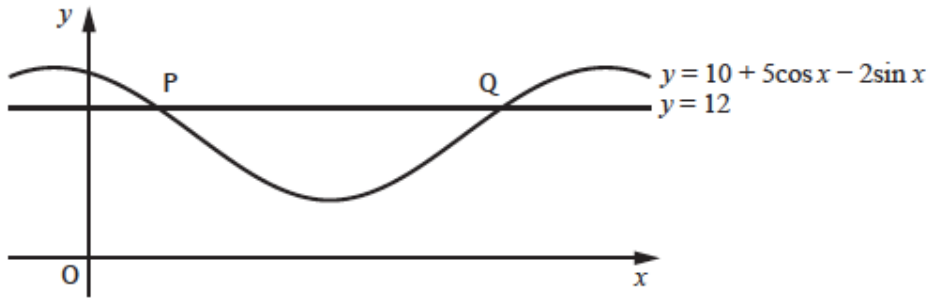


Show that $\sin(p - q) = \frac{16\sqrt{17}}{85}$

Higher Maths: Trigonometry

Q5

- (a) Express $5\cos x - 2\sin x$ as $k \cos(x + a)$, where $k > 0$ and $0 \leq a \leq 2\pi$.
- (b) The diagram shows a sketch of part of the graph of $y = 10 + 5\cos x - 2\sin x$ and the line $y = 12$.



The line cuts the curve at the points P and Q.
Find the coordinates of P and Q.

Q6

- The expression $3\sin x - 5\cos x$ can be written in the form $R\sin(x + a)$, where $R > 0$ and $0 \leq a \leq 2\pi$.
Calculate the values of R and a .