



Leith Academy Higher Home Learning



THE WAVE FUNCTION

CALCULATOR

- 1) Express $12 \sin x^\circ - 5 \cos x^\circ$ in the form $k \sin(x - a)^\circ$ where $k > 0$ and $0 < a < 360$.
- 2) Express $4 \sin x + 2 \cos x$ in the form $k \cos(x + a)^\circ$ where $k > 0$ and $0 < a < 2\pi$.
- 3) Express $3 \sin x^\circ - 2 \cos x^\circ$ in the form $k \sin(x + a)^\circ$ where $k > 0$ and $0 < a < 360$ and hence solve the equation $3 \sin x^\circ - 2 \cos x^\circ = 2$ for $0 < x < 180$.
- 4) Express $5 \sin x + 7 \cos x$ in the form $k \cos(x - a)$ where $k > 0$ and $0 < a < 2\pi$ and hence find both the maximum and minimum values of $y = 5 \sin x + 7 \cos x$ and the values of x where they occur.
- 5) Express $-\sqrt{5} \sin x^\circ - \sqrt{5} \cos x^\circ$ in the form $k \cos(x - a)^\circ$ where $k > 0$ and $0 < a < 360$ and hence sketch the graph of $y = -\sqrt{5} \sin x^\circ - \sqrt{5} \cos x^\circ$ for $0 \leq x \leq 360$