

1. Solve $\sqrt{2} \sin 2x^\circ + 1 = 0$ for $0 \leq x \leq 360$. 4

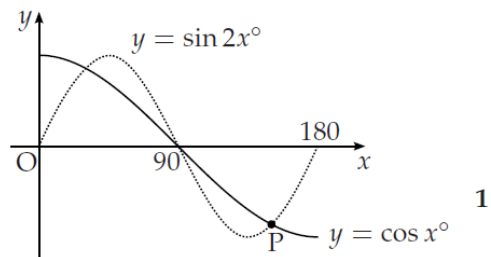
2. Find the exact values of x for which $3 \tan^2 x = 1$, where $0 \leq x \leq 2\pi$. 3

3. Solve $3 \cos 2x^\circ = 7 \cos x^\circ$ for $0 \leq x \leq 360$. 5

4. (a) Solve the equation $\sin 2x^\circ - \cos x^\circ = 0$ in the interval $0 \leq x \leq 180$. 4

(b) The diagram shows parts of two trigonometric graphs, $y = \sin 2x^\circ$ and $y = \cos x^\circ$.

Use your solutions in (a) to write down the coordinates of the point P.



5. Solve the equation $2 \sin\left(2x - \frac{\pi}{6}\right) = 1$, $0 \leq x < 2\pi$. 4

6. Functions f and g are defined on suitable domains by $f(x) = \sin(x^\circ)$ and $g(x) = 2x$.

(a) Find expressions for:

(i) $f(g(x))$;

(ii) $g(f(x))$. 2

(b) Solve $2f(g(x)) = g(f(x))$ for $0 \leq x \leq 360$. 5

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| 28 Marks |
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