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National 5 Maths Trigonometric Graphs

SQA past paper and specimen paper questions and answers by topic

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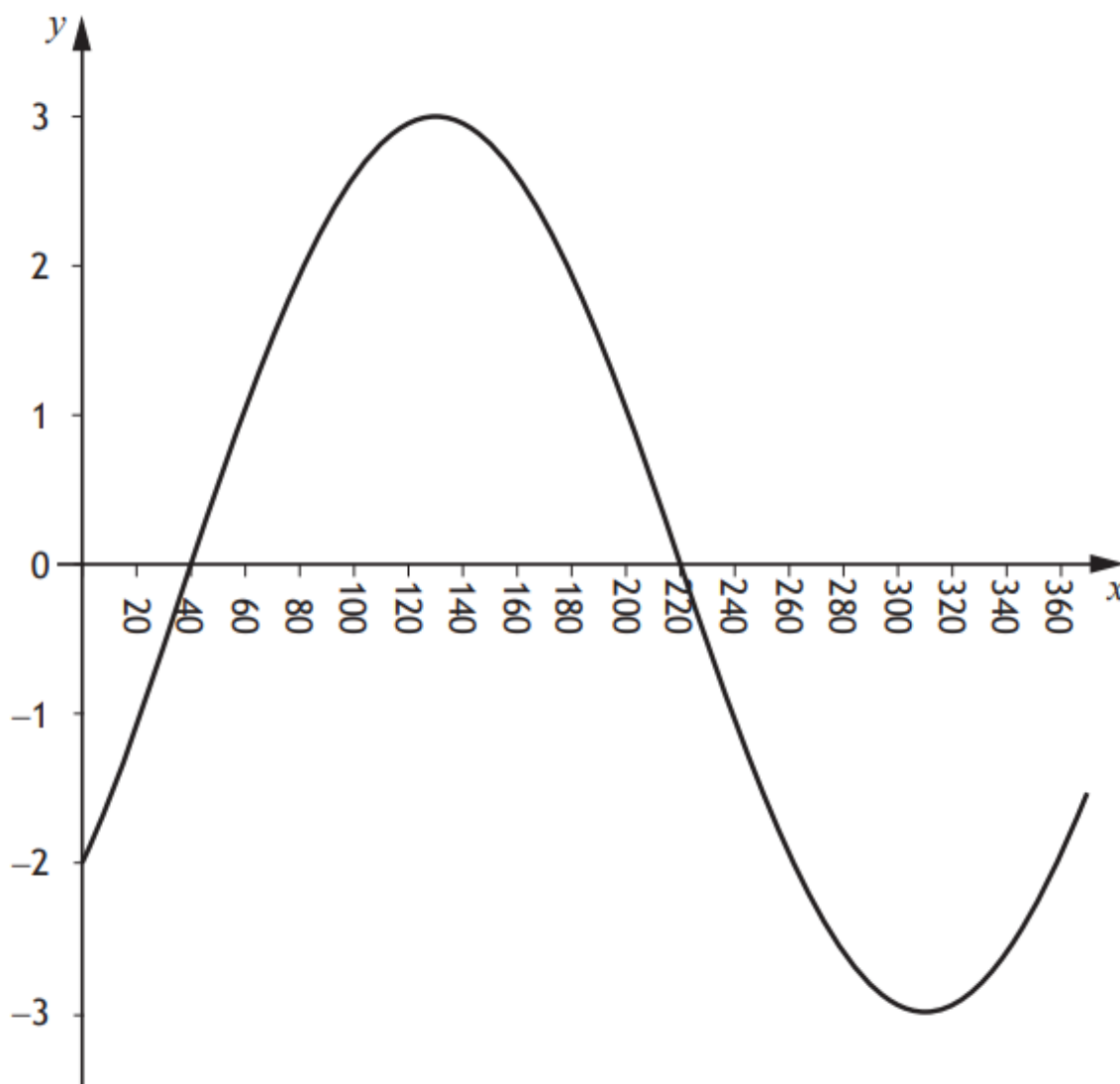Part of the graph of $y = a\cos x° + b$ is shown below.
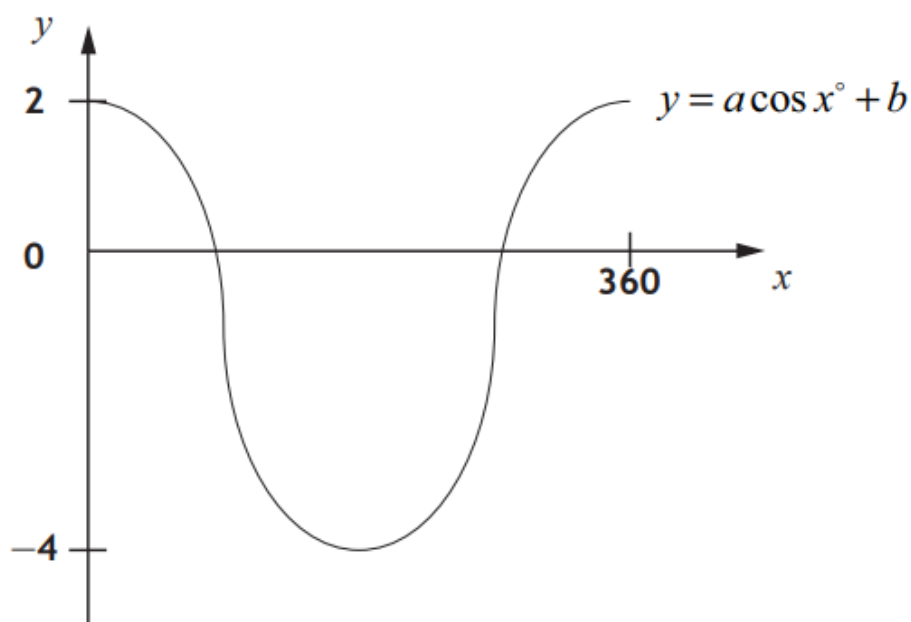
(a) Explain how you can tell from the graph that $a = 3$ and $b = -1$.   2

(b) Calculate the x-coordinates of the points where the graph cuts the x-axis.   4

Answers:

(a) $a = 3$ because 2 – (–4) = 6, which is 3 × (1 – (–1)).

        $b = -1$ because the graph of $y = 3 \cos x$ has been moved down 1.

(b)   70·5°, 289·5°

The graph of $y = a\sin(x+b)^\circ$, $0 \leq x \leq 360$, is shown below.

Write down the values of a and b.   **2**
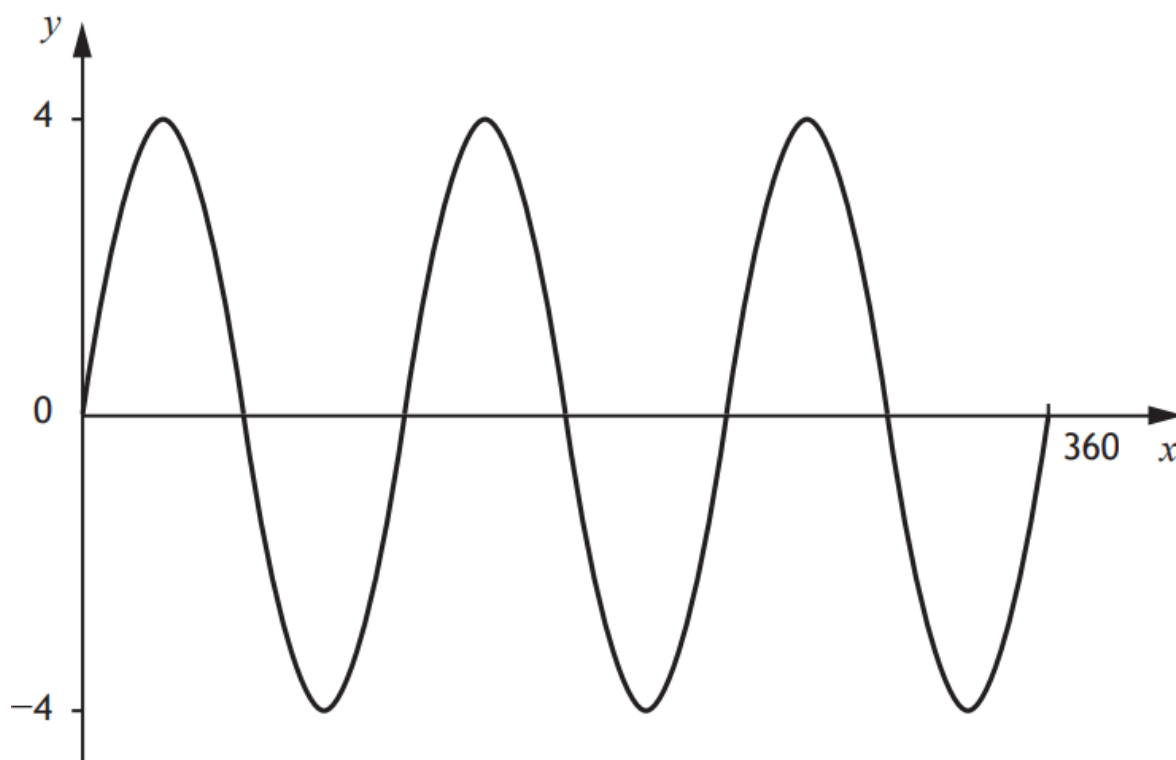
Answers:

$a = 3$
$b = -40$

Part of the graph of $y = a \sin bx°$ is shown in the diagram.

State the values of a and b. **2**

Answers:

$a = 4$
$b = 3$

Write the following in order of size starting with the smallest.

$\cos 90°$ $\qquad$ $\cos 100°$ $\qquad$ $\cos 300°$

Justify your answer. **2**
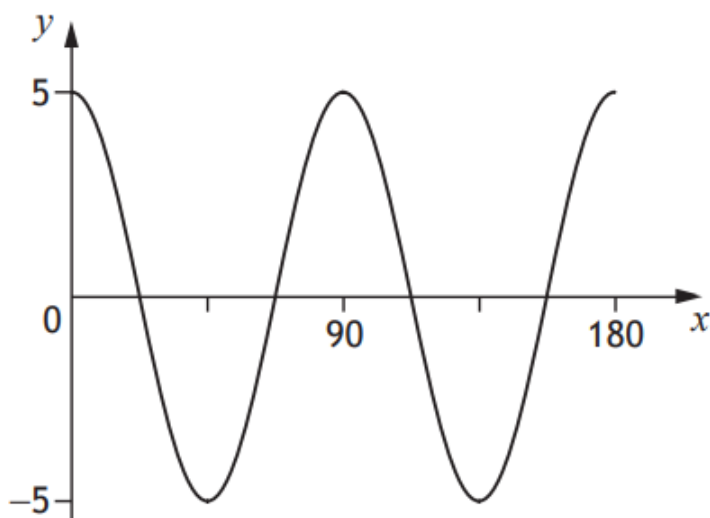
Answer:

$\cos 100°, \cos 90°, \cos 300°$

The justification should use either the ASTC quadrant diagram or the graph of $y = \cos x$.

Part of the graph of $y = a \cos bx°$ is shown in the diagram.
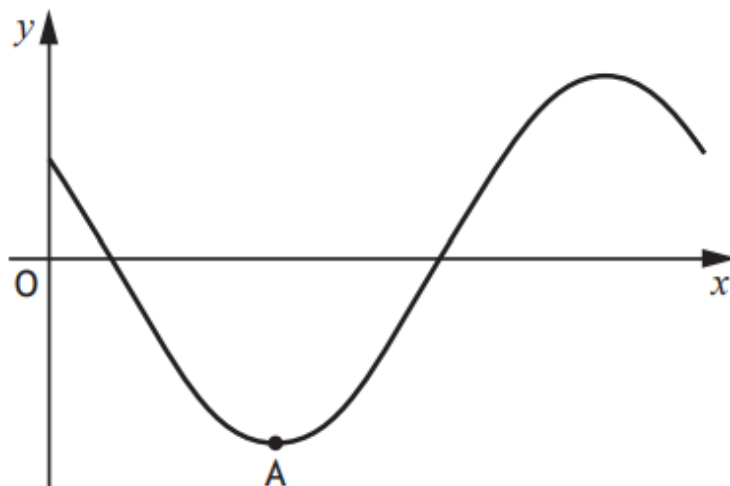

State the values of a and b. **2**

Answers:

$a = 5$
$b = 4$

Part of the graph of $y = 3\cos(x+45)°$ is shown in the diagram.
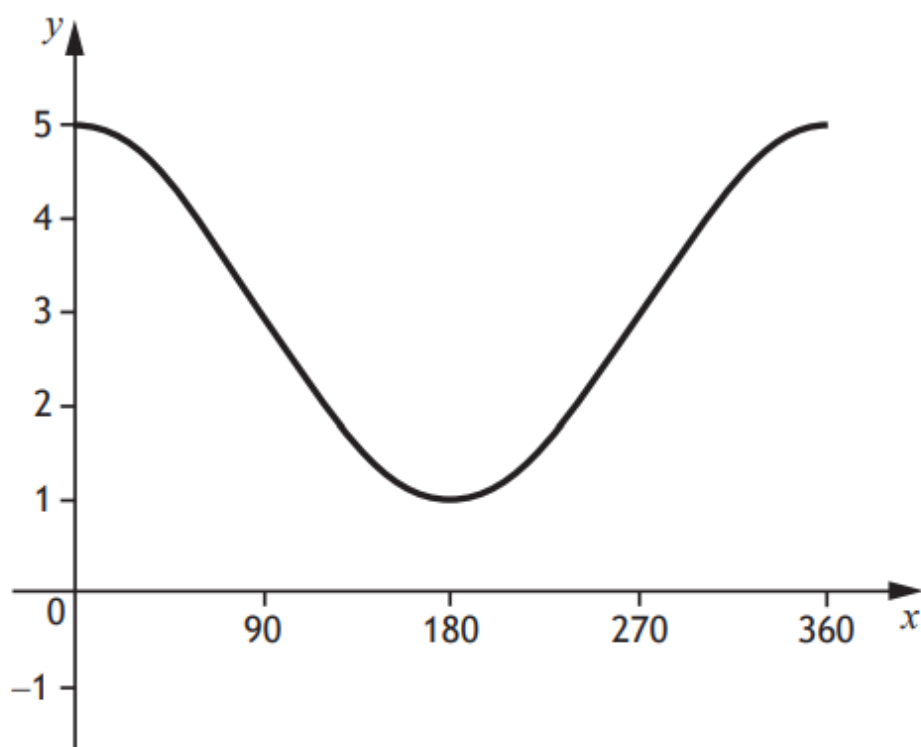

The graph has a minimum turning point at A.

State the coordinates of A.   **2**

Answer:

(135, −3)

The graph of $y = a\cos x° + b$, $0 \leq x \leq 360$, is shown.

State the values of a and b.   **2**

Answers:

$a = 2$
$b = 3$

The function $f(x)$ is defined by $f(x) = 4\sin 3x°$.

Evaluate $f(90)$.   **2**
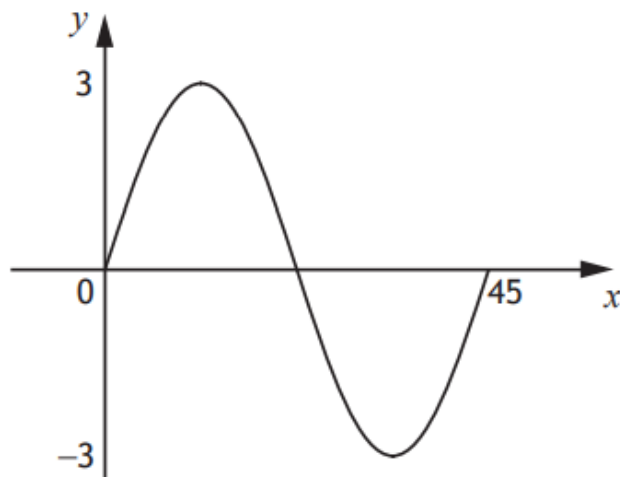
Answer:

−4

Part of the graph of $y = a \sin bx°$ is shown in the diagram.

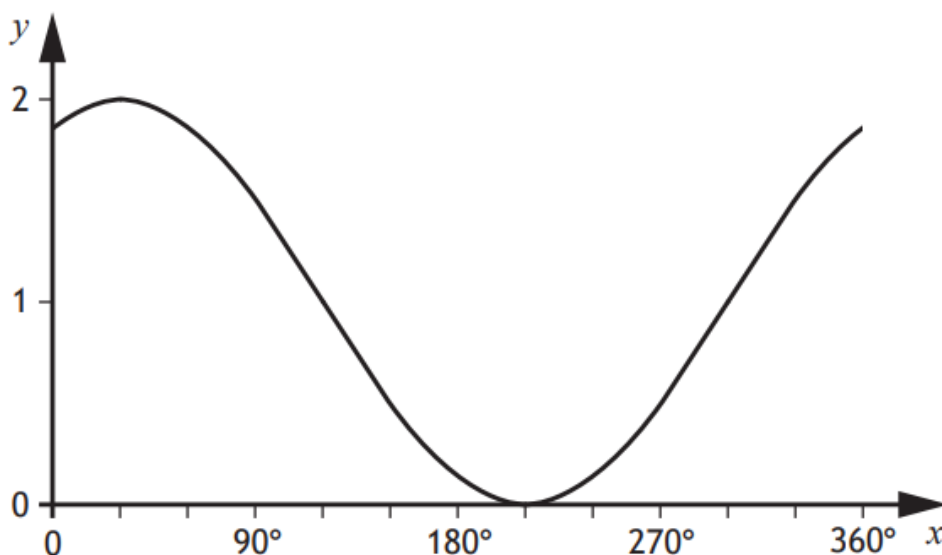(a) State the value of a.   1

(b) State the value of b.   1

Answers:

(a) $a = 3$

(b) $b = 8$

Part of the graph of $y = \cos(x+a)° + b$ is shown.

(a) State the value of a. **1**

(b) State the value of b. **1**

Answers:

(a) $a = -30 \ (or\ 330)$

(b) $b = 1$