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National 5 Maths
Trigonometric Graphs

SQA past paper and specimen paper questions and answers by topic

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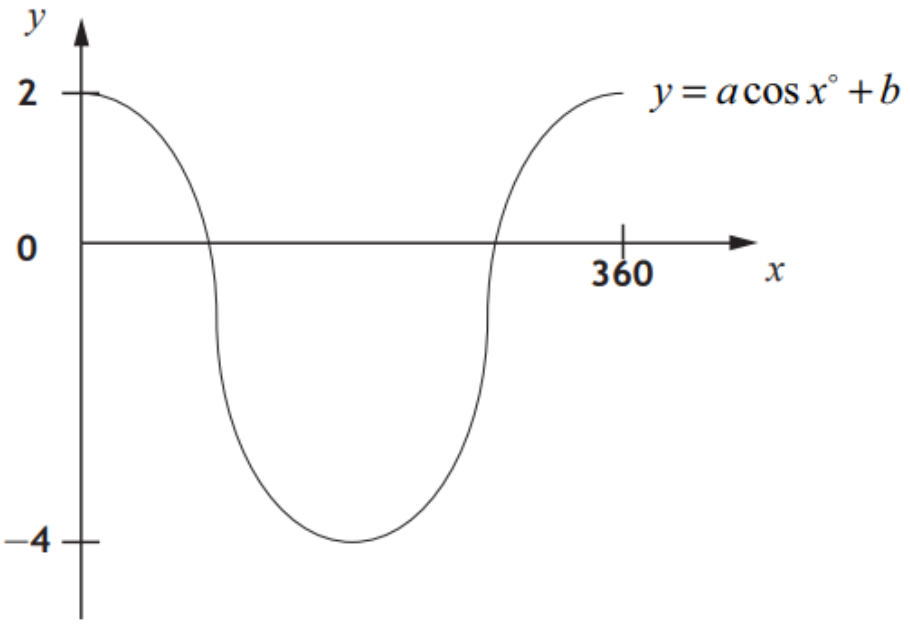
National 5 Maths
SQA 2013 Specimen
Paper 2 Question 10

National 5 Maths
Maths.scot

Part of the graph of $y = a\cos x^\circ + b$ 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:

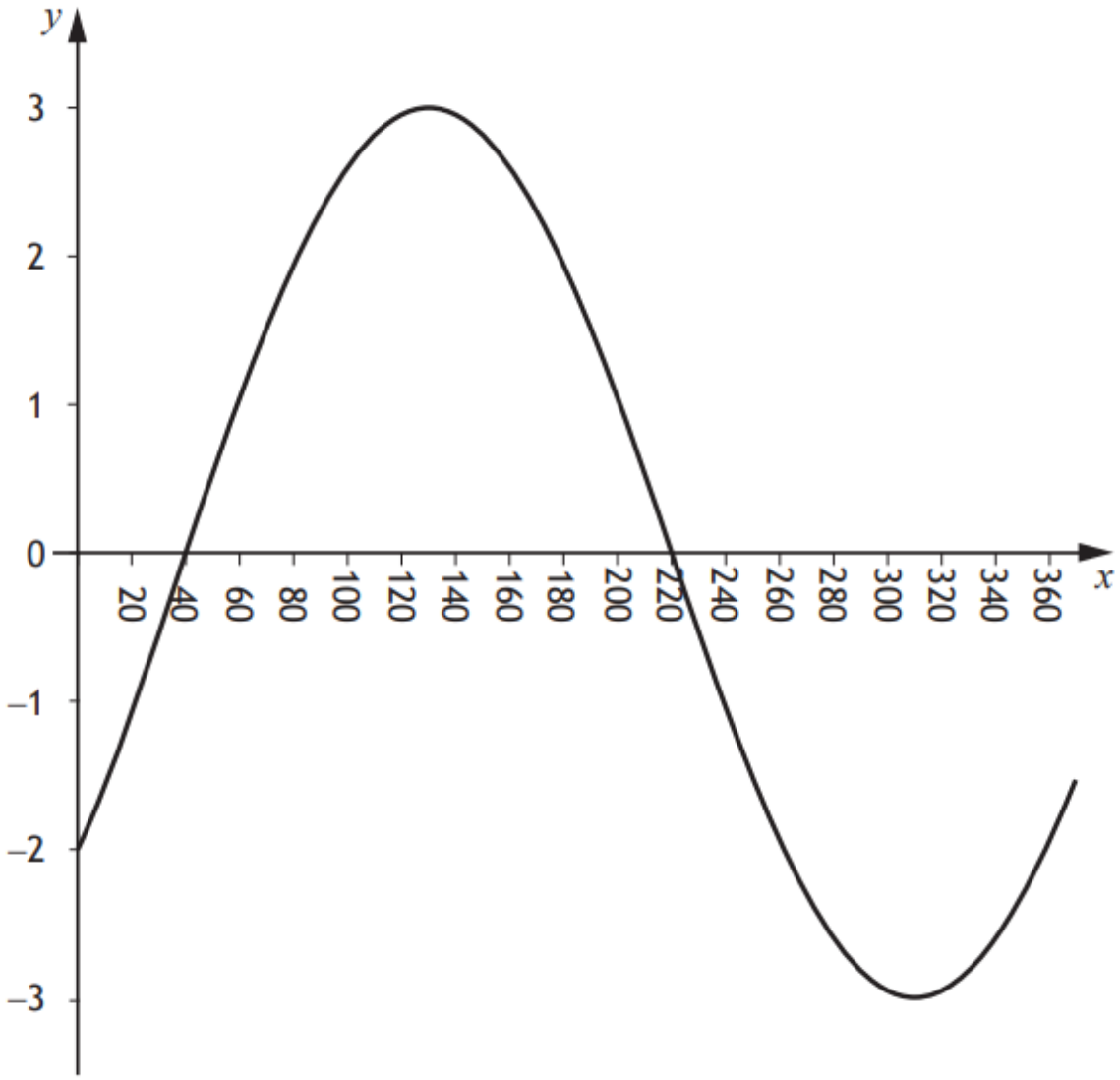
(a) $a = 3$ because 2 – (–4) = 6, which is 3 × (1 – (–1)).

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

(b) 70·5°, 289·5°

National 5 Maths
SQA 2014 Paper 1
Question 10

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



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

Answers:

$a = 3$
$b = -40$

National 5 Maths
SQA 2015 Paper 1
Question 6

National 5 Maths
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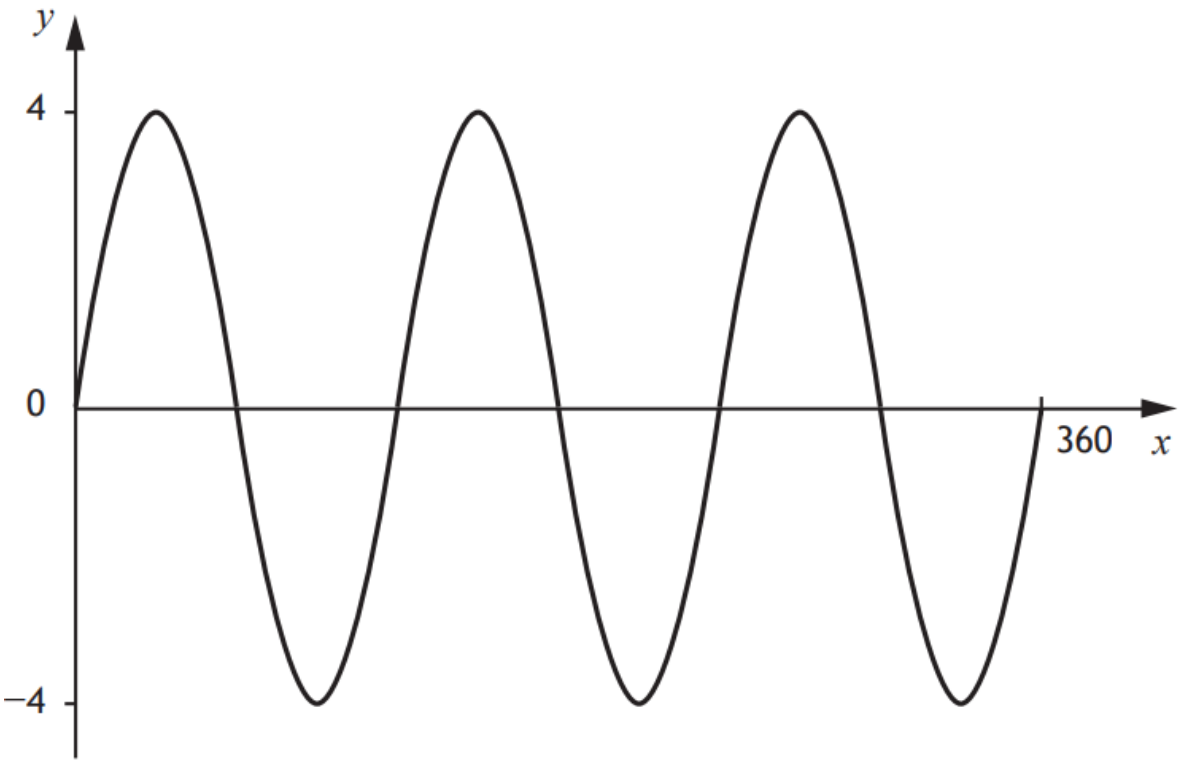
Part of the graph of $y = a\sin bx^\circ$ is shown in the diagram.



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

Answers:

$a = 4$
$b = 3$

National 5 Maths
SQA 2015 Paper 1
Question 9

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

$\cos 90°$ $\cos 100°$ $\cos 300°$

Justify your answer. **2**

Answer:

$\cos 100°, \cos 90°, \cos 300°$

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

National 5 Maths
SQA 2018 Paper 1
Question 6

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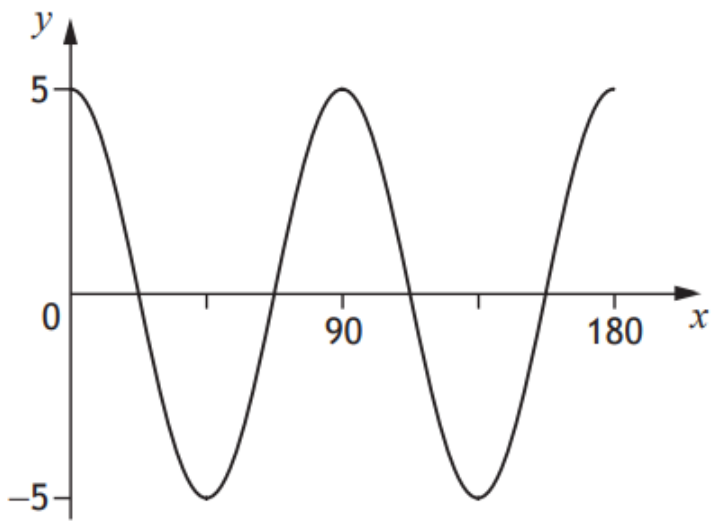
Part of the graph of $y = a\cos bx°$ is shown in the diagram.



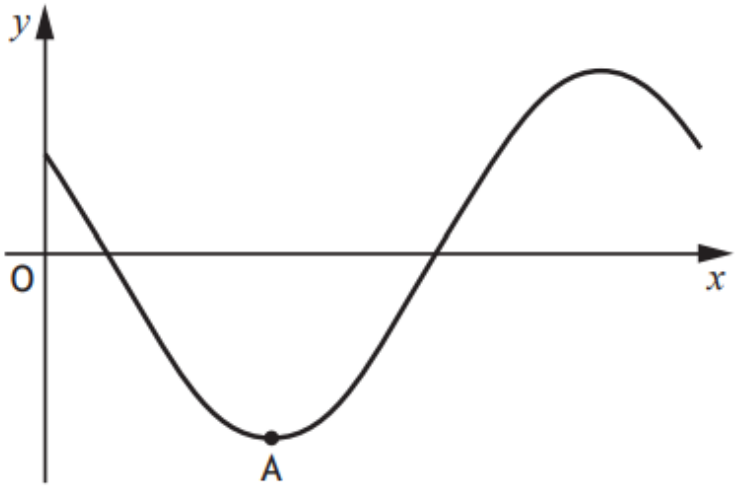
State the values of a and b. **2**

Answers:

$a = 5$
$b = 4$

National 5 Maths
SQA 2019 Paper 1
Question 13

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)

National 5 Maths
SQA 2021 Paper 1
Question 13

National 5 Maths
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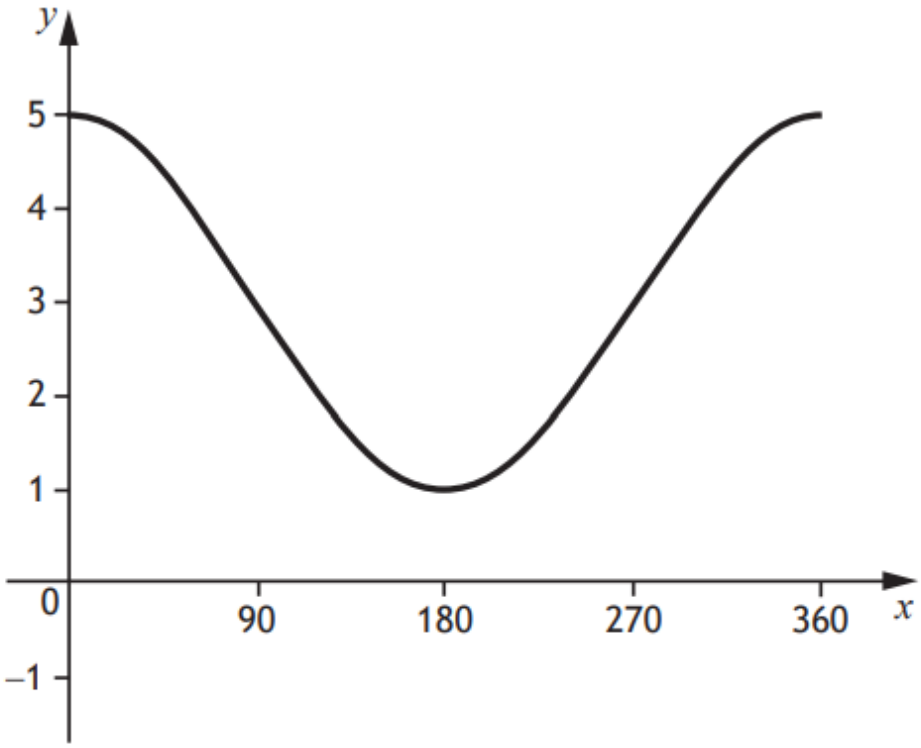
The graph of $y = a\cos x^\circ + b$, $0 \leq x \leq 360$, is shown.



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

Answers:

$a = 2$
$b = 3$

National 5 Maths
SQA 2021 Paper 1
Question 16

National 5 Maths
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The function $f(x)$ is defined by $f(x) = 4\sin 3x°$.

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

Answer:

–4

National 5 Maths
SQA 2022 Paper 1
Question 8

National 5 Maths
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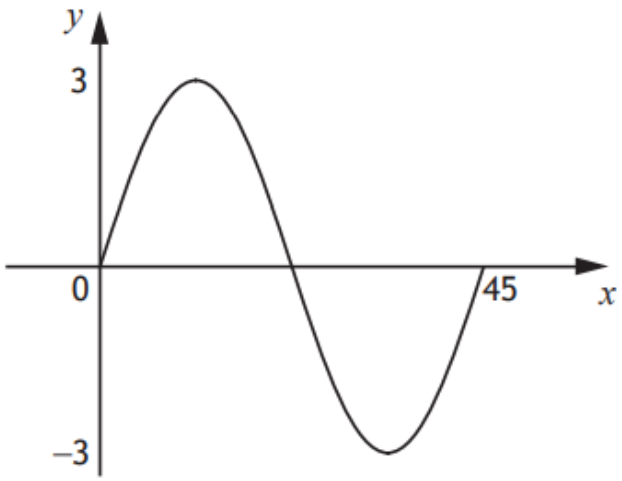
Part of the graph of $y = a\sin bx^\circ$ is shown in the diagram.



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

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

Answers:

(a) $a = 3$

(b) $b = 8$

National 5 Maths
SQA 2023 Paper 1
Question 13

National 5 Maths
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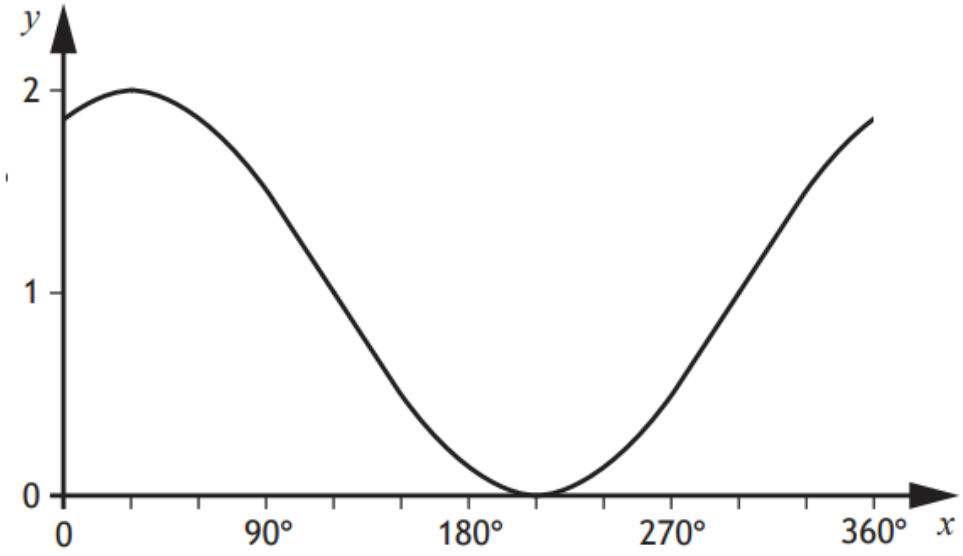
Part of the graph of $y = \cos(x + a)° + b$ is shown.



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

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

Answers:

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

(b) $b = 1$

National 5 Maths
SQA 2024 Paper 1
Question 8

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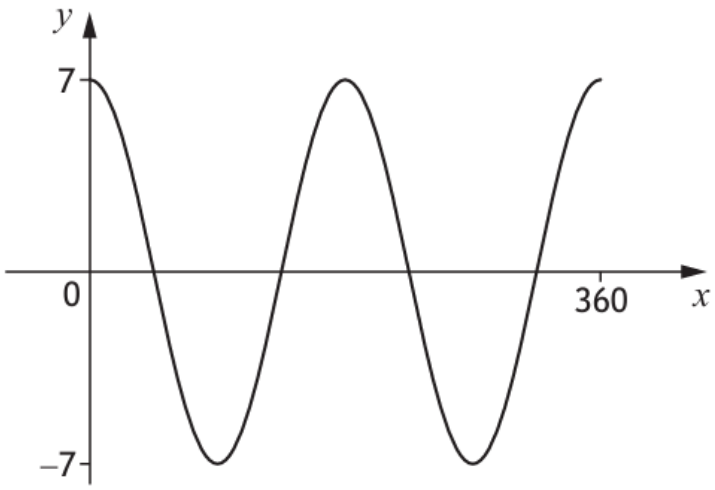
The graph of $y = a\cos bx°$, $0 \leq x \leq 360$, is shown.



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

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

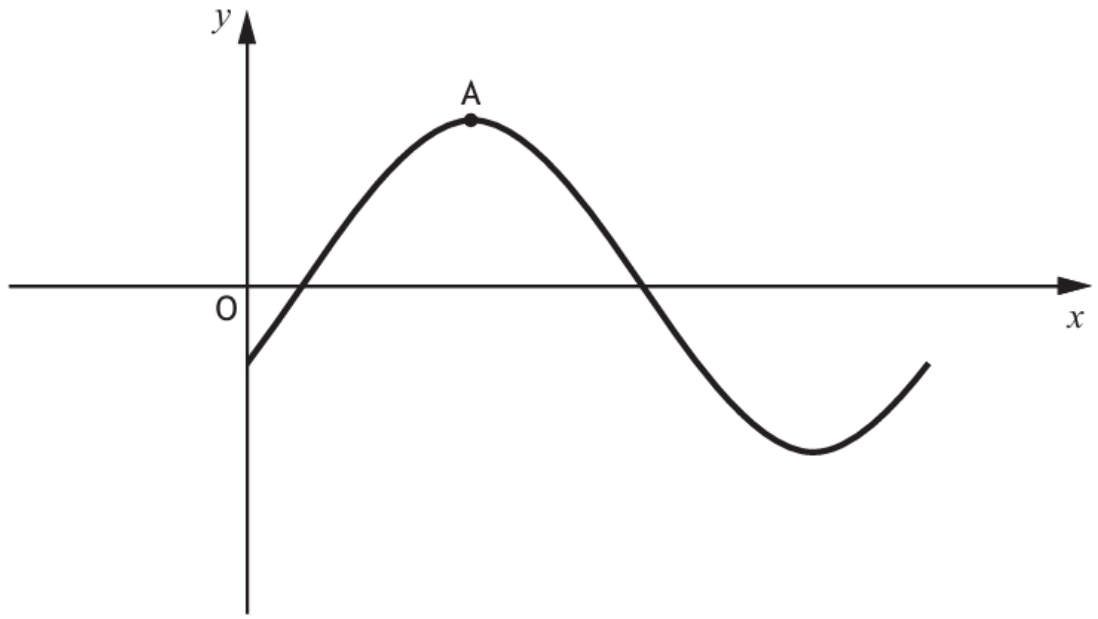
Answers:

(a) 7

(b) 2

National 5 Maths
SQA 2025 Paper 1
Question 8

Part of the graph of $y = 2\sin(x - 30)°$ is shown in the diagram.



The graph has a maximum turning point at A.

State the coordinates of A. **2**

Answer:

(120, 2)