Name: _____

ASM Tuition Academy

Trigonometric and Exponential Graphs

Instructions:

- Use **black** ink or ball-point pen.
- Answer all questions.
- Answer the questions in the spaces provided
  - there may be more space than you need.
- Diagrams are **NOT** accurately drawn, unless otherwise indicated.
- You must **show all you're working out.**

Information:

- The marks for each question are shown in brackets
  - use this as a guide as to how much time to spend on each question.

Advice:

- Read each question carefully before you start to answer it.
- Keep an eye on time.
- Try to answer every question.
- Check your answers if you have time at the end.

Q1- Draw the graph of y=sinx° for 0 ≤ x ≤ 360

(Total for question 1 is 2 marks)
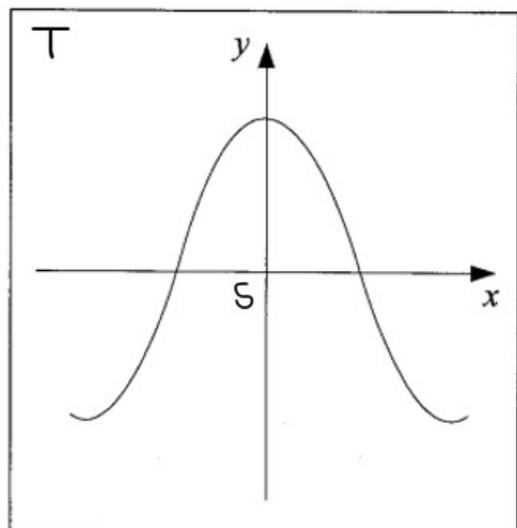
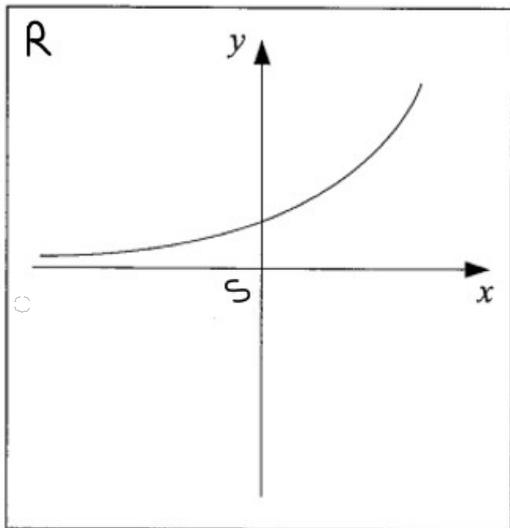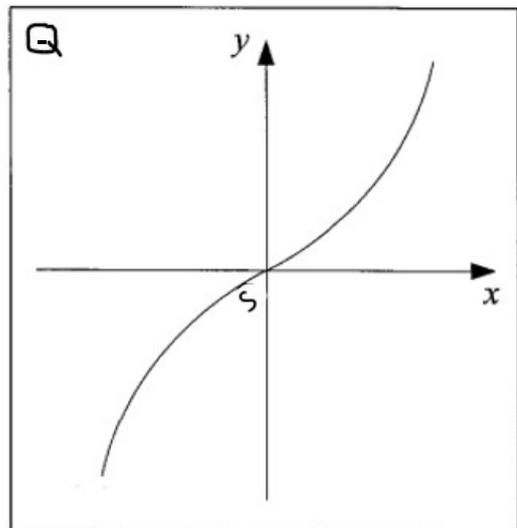**Q2- Draw the graph of y=tanx° for 0 ≤ x ≤ 360**

(Total for question 2 is 2 marks)

Q3- Draw the graph of y=cos° for 0 ≤ x ≤360

(Total for question 3 is 2 marks)

Q4- On the grid, draw the curve with equation y=3^x. Also, give the coordinates of any points of intersection with the axis
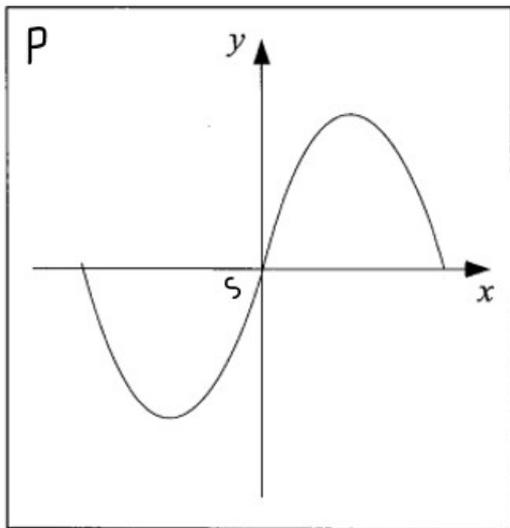
(Total for question 4 is 2 marks)
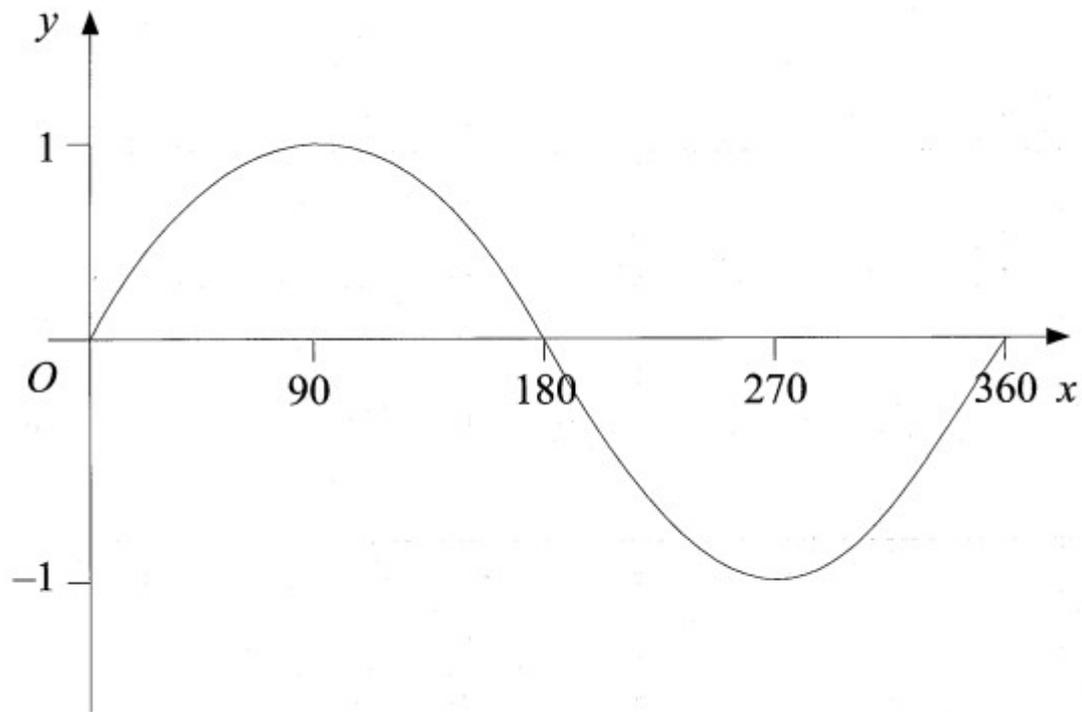
Q5- Below are the four different graphs

P

Q

R

T

In the table below, match each equation with the letter of its graph

Equation	Letter of Graph
y = sin(x)	
y = 2^x	
y = x^3	
y = cos(x)	

(Total for question 5 is 2 marks)

Q6- Below is a sketch of the curve y = sin x° for 0 ≤ x ≤ 360.

Write down the value of:

    i)   **sin 90°**

    ii)   **ii) sin 270°**

(Total for question 6 is 2 marks)

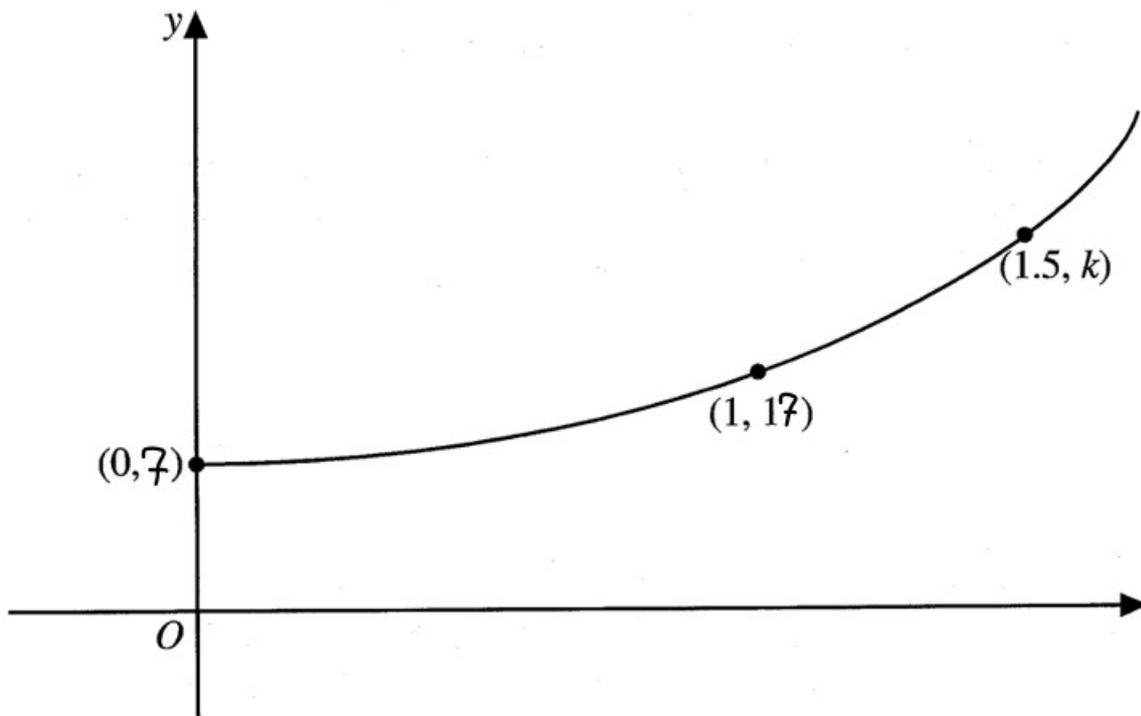**Q7- Below is a sketch of the curve y = cos x° for 0 ≤ x ≤ 360.**
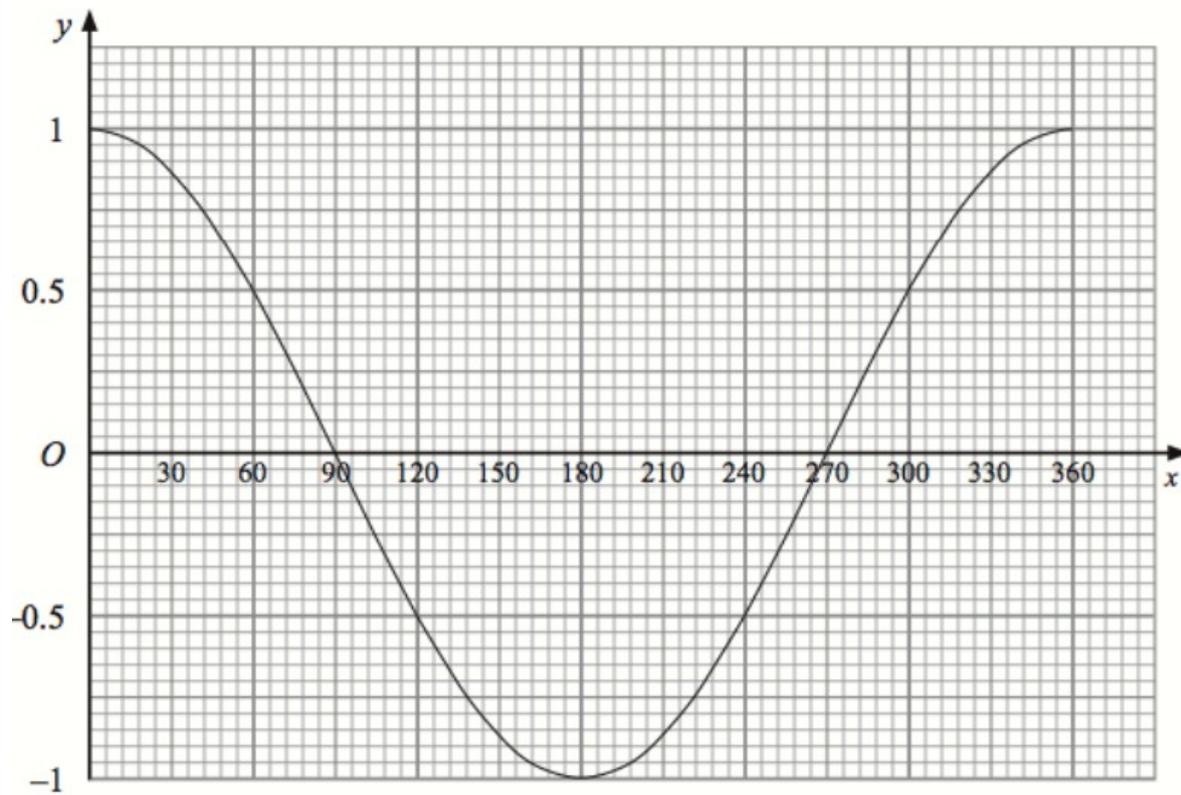
Use the graph to find estimates of the solutions, in the interval 0 ≤ x ≤ 360, of the equation:

i)   cos(x) = -0.5

ii)   4 cos(x) = 2

(Total for question 7 is 4 marks)

Q8- This sketch shows part of the graph with equation y = pq^x where p and q are constants.

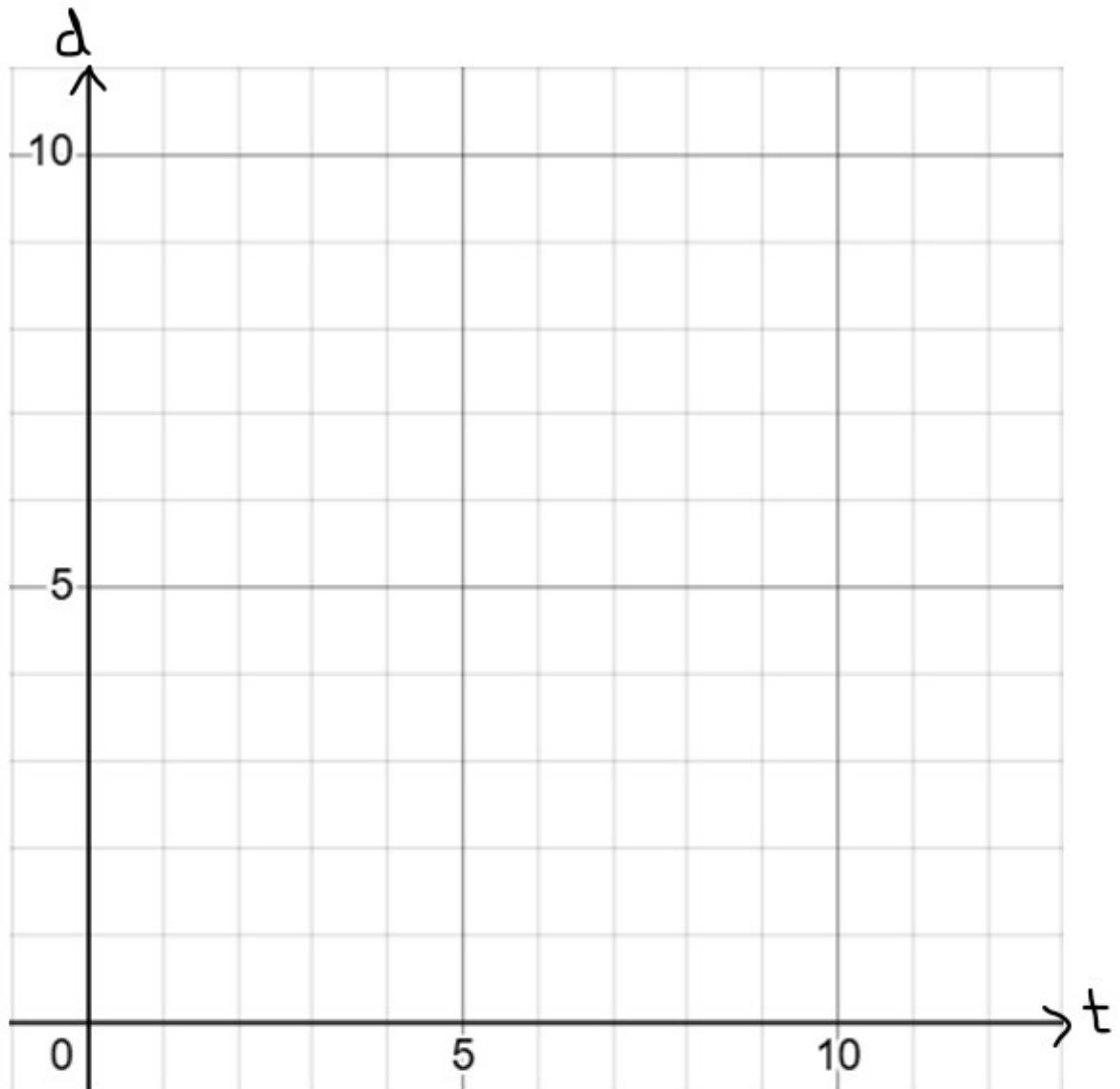**The points with coordinates (0, 7), (1, 17), and (1.5, k) lie on the graph.**

Find the values of p, q, and k

(Total for question 8 is 6 marks)

Q9- The depth of the water, d metres, at the entrance of a can is given by the formula:

d = 6 − 5sin(30t), where t is the time in hours after midnight on one day.

   (a) On the axes below, draw the graph of d against t for 0 ≤ t ≤ 12

   (b) Find the two values of t, where 0 ≤ t ≤ 24, when the depth is least.

(Total for question 9 is 6 marks)