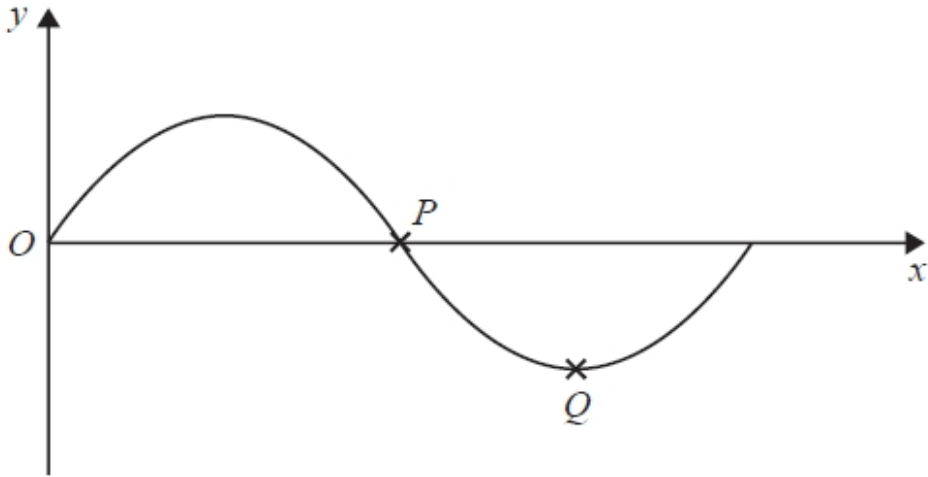


A267 Exponential and trig graphs

Q1.

The diagram shows part of a sketch of the curve $y = \sin x^\circ$



(a) Write down the coordinates of

(i) the point P

(..... ,)

(ii) the point Q

(..... ,)

(2)

(b) Sketch the graph of $y = \tan x$ for $0^\circ \leq x \leq 360^\circ$

Show the coordinates of any points of intersection with the coordinate axes.

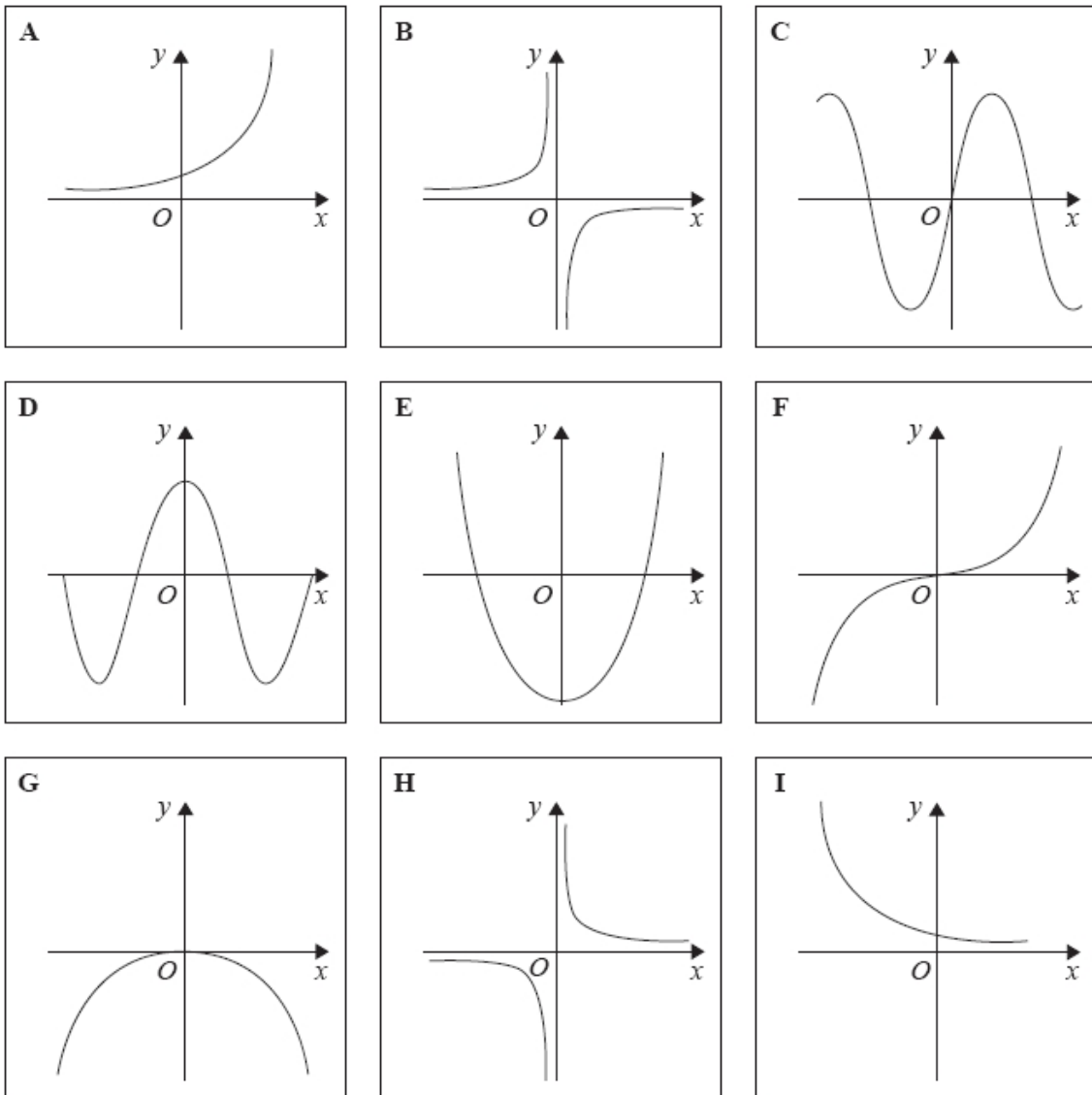


(2)

(Total for question = 4 marks)

Q2.

Here are some graphs.



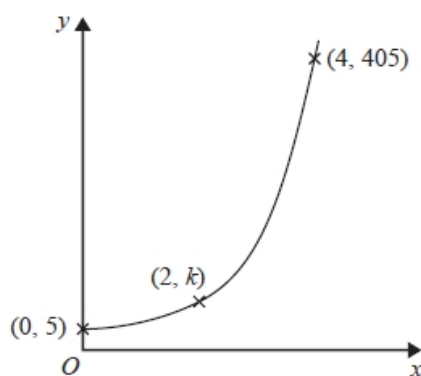
In the table below, match each equation with the letter of its graph.

Equation	Graph
$y = \sin x$	
$y = x^3 + 4x$	
$y = 2^x$	
$y = \frac{4}{x}$	

(Total for question = 3 marks)

Q3.

Here is a sketch of part of the graph of $y = pq^x$ where $q > 0$

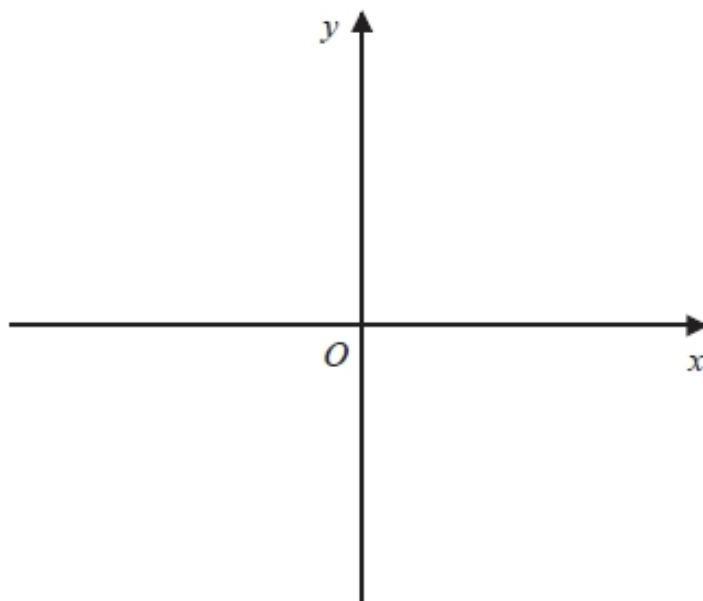


The points $(0, 5)$, $(2, k)$ and $(4, 405)$ are all on the graph of $y = pq^x$
Find the value of k .

.....
(Total for question = 4 marks)

Q4.

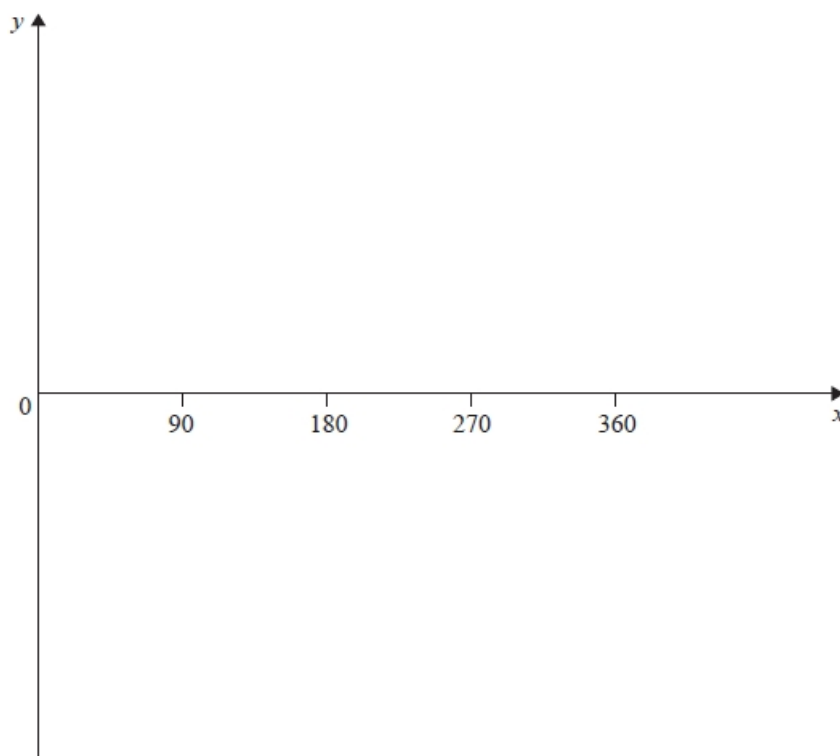
On the grid, sketch the curve with equation $y = 2^x$
Give the coordinates of any points of intersection with the axes.



(Total for question = 2 marks)

Q5.

Sketch the graph of $y = \tan x^\circ$ for $0 \leq x \leq 360$



(Total for question = 2 marks)

Q6.

Louis and Robert are investigating the growth in the population of a type of bacteria. They have two flasks A and B.

At the start of day 1, there are 1000 bacteria in flask A.

The population of bacteria grows exponentially at the rate of 50% per day.

(a) Show that the population of bacteria in flask A at the start of each day forms a geometric progression.

(2)

The population of bacteria in flask A at the start of the 10th day is k times the population of bacteria in flask A at the start of the 6th day.

(b) Find the value of k .

.....
(2)

At the start of day 1 there are 1000 bacteria in flask B.

The population of bacteria in flask B grows exponentially at the rate of 30% per day.

(c) Sketch a graph to compare the size of the population of bacteria in flask A and in flask B.

(1)

(Total for question = 5 marks)