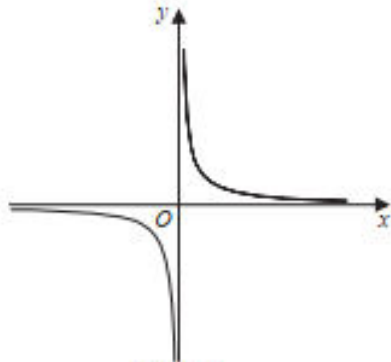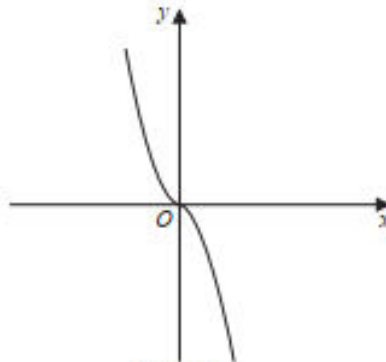**FUNCTIONS AND THEIR GRAPHS**

Pearson Edexcel - Tuesday 19 May 2020 - Paper 1 (Non-Calculator) Higher Tier
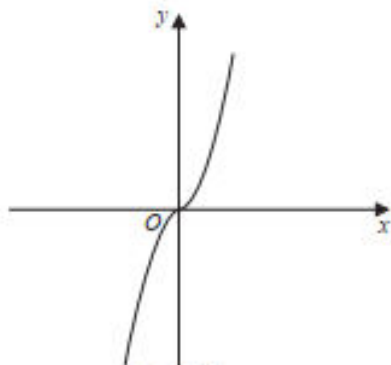
1.
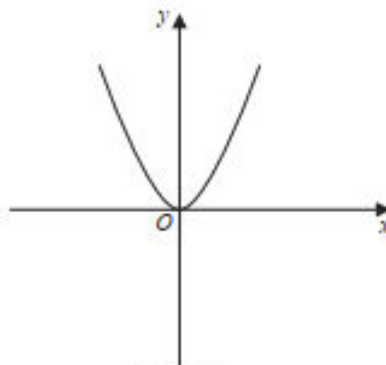
3   The diagram shows four graphs.

Graph A

Graph B

Graph C

Graph D

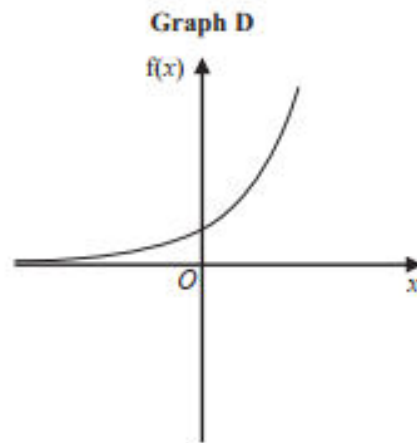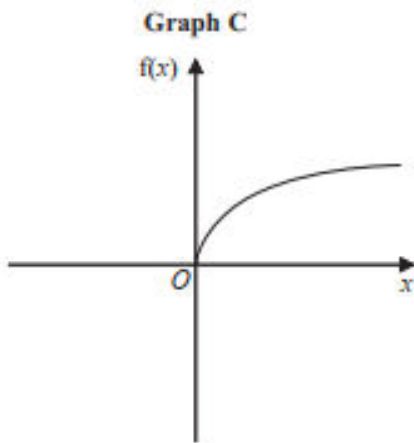Each of the equations in the table is the equation of one of the graphs.

Complete the table.

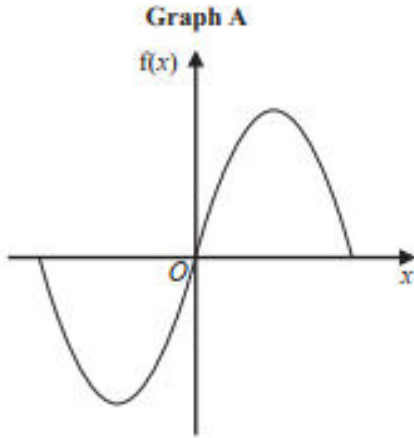| Equation	Letter of graph
$y = -x^3$	
$y = x^3$	
$y = x^2$	
$y = \dfrac{1}{x}$	

(Total for Question 3 is 2 marks)

2.

17 Here are four graphs.

Graph A

f(x)

Graph B

f(x)

Graph C

f(x)

Graph D

f(x)
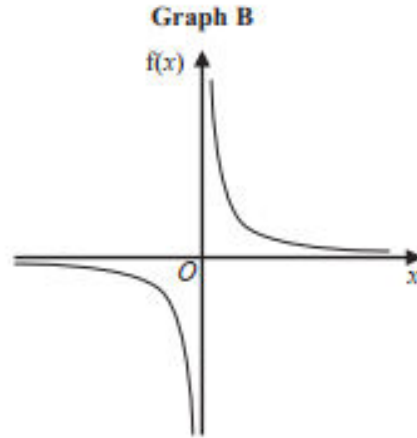
The graphs represent four different types of function f.

Match each description of the function in the table to the letter of its graph.

Description of function	Graph
f(x) is inversely proportional to x	
f(x) is a trigonometrical function	
f(x) is an exponential function	
f(x) is directly proportional to $\sqrt{x}$	

(Total for Question 17 is 2 marks)

Pearson Edexcel - Thursday 8 June 2017 - Paper 2 (Calculator) Higher Tier

3.

14 Here are some graphs.
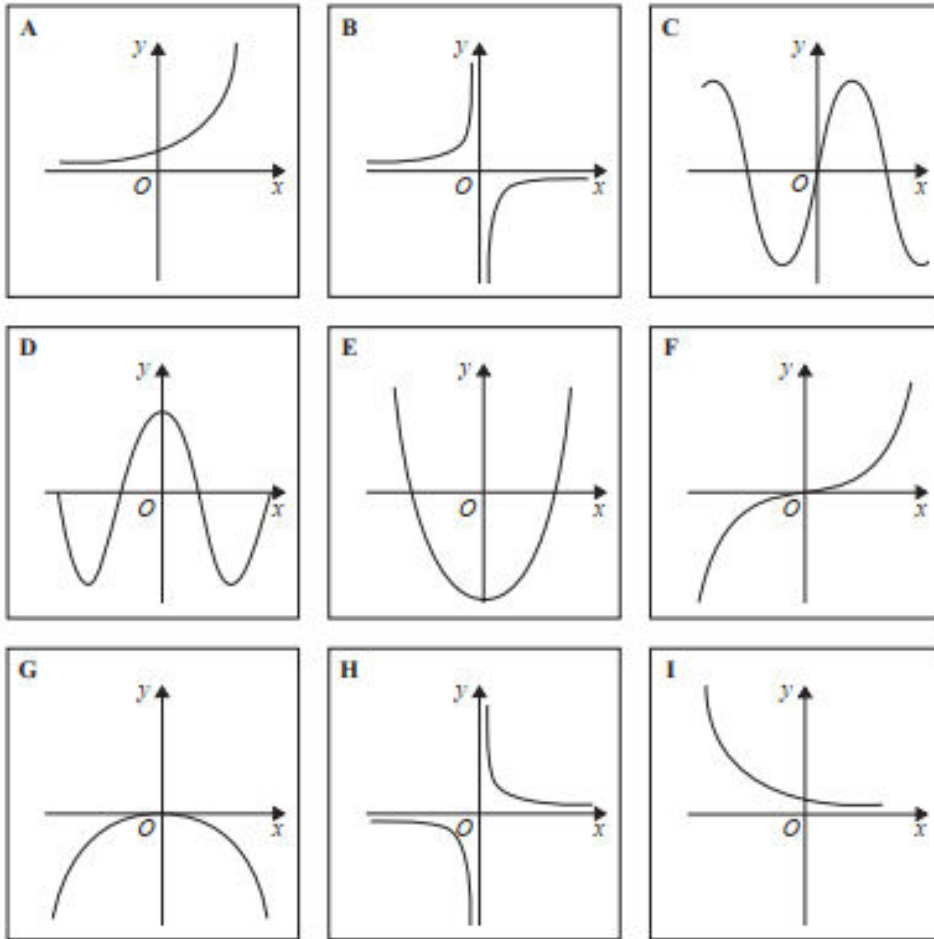
In the table below, match each equation with the letter of its graph.

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

(Total for Question 14 is 3 marks)

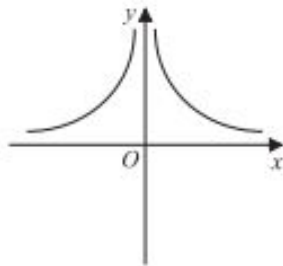**Pearson Edexcel - Specimen Papers Set 1 - Paper 1 (Non-Calculator) Higher Tier**

4.

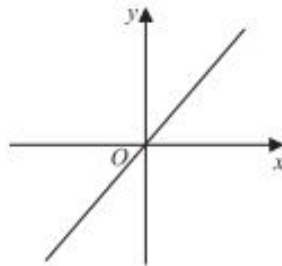**16** These graphs show four different proportionality relationships between y and x.
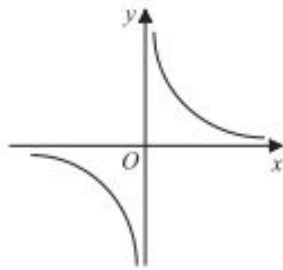
Graph A
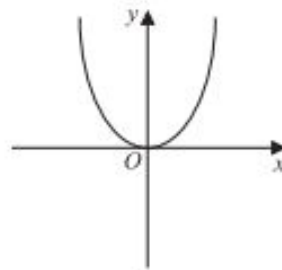
Graph B

Graph C

Graph D

Match each graph with a statement in the table below.

Proportionality relationship	Graph letter
y is directly proportional to x	
y is inversely proportional to x	
y is proportional to the square of x	
y is inversely proportional to the square of x	

(Total for Question 16 is 2 marks)

Pearson Edexcel - Friday 2 March 2012 - Paper 3 (Non-Calculator) Higher Tier

5.

20.
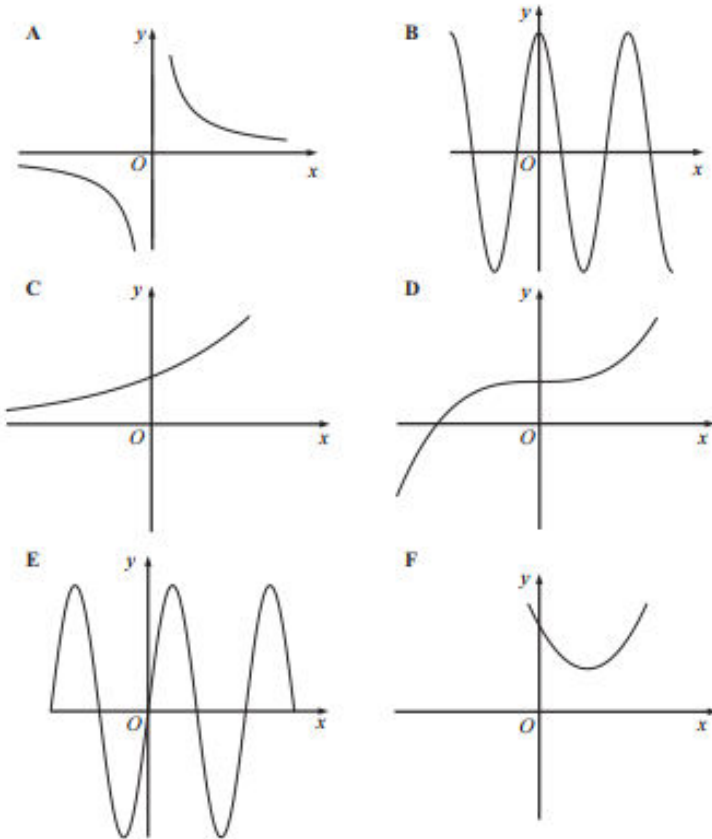
Each equation in the table represents one of the graphs **A** to **F**.

Write the letter of each graph in the correct place in the table.

Equation	Graph
$y = 4 \sin x°$	
$y = 4 \cos x°$	
$y = x^2 - 4x + 5$	
$y = 4 \times 2^x$	
$y = x^3 + 4$	
$y = \dfrac{4}{x}$	

(Total 3 marks)

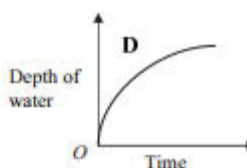**Pearson Edexcel - Friday 12 November 2010 - Paper 4 (Calculator) Higher Tier**
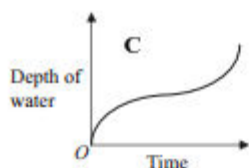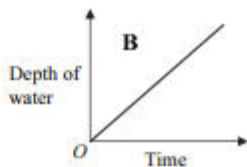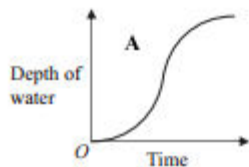
6.

11. Here are four containers.
Water is poured into each container at a constant rate.

1   2   3   4
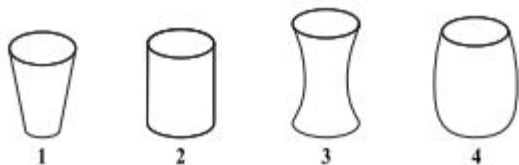
Here are four graphs.
The graphs show how the depth of the water in each container changes with time.

A

Depth of
water

O   Time

B

Depth of
water

O   Time

C

Depth of
water

O   Time

D

Depth of
water

O   Time

Match each graph with the correct container.

A and ....

B and ....

C and ....

D and ....

(Total 2 marks)

OCR GSCE – Thursday 5 November 2020 – Paper 5 (Non-Calculator) Higher Tier

7.

13 (a) Sketch the graph of $y = \sin x$ for $0° \leqslant x \leqslant 360°$.
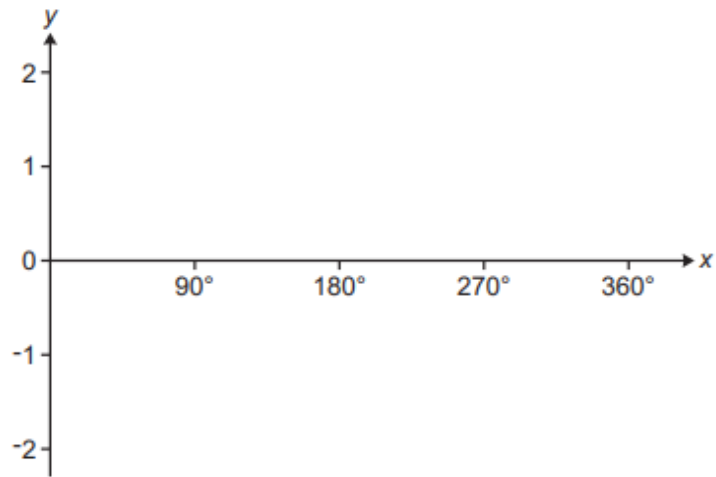
[2]

(b) The graph of $y = \cos(x - 30)$ for $0° \leqslant x \leqslant 360°$ crosses the x-axis in two places.

Write down the values of x where this occurs.

$x =$ .... and .... [2]

OCR GSCE – Tuesday 2 November 2017 – Paper 4 (Calculator) Higher Tier

8.

16 **(a)** Write $x^2 - 6x + 20$ in the form $(x - a)^2 + b$.

(a) .... [3]

(b) Write down the turning point of the graph of $y = x^2 - 6x + 20$.

(b) (............................. , ...) [2]

OCR GSCE – Thursday 25 May 2017 – Paper 4 (Calculator) Higher Tier

9.

17 Describe fully the graph which has the equation $x^2 + y^2 = 9$.
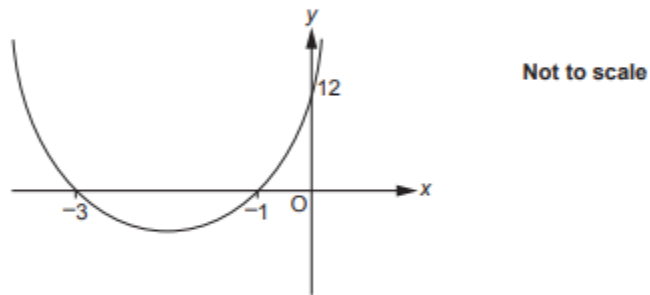
.... [2]

19 (a) Sketch the graph of $y = (x-2)^2 - 3$.
Show the coordinates of any turning points.
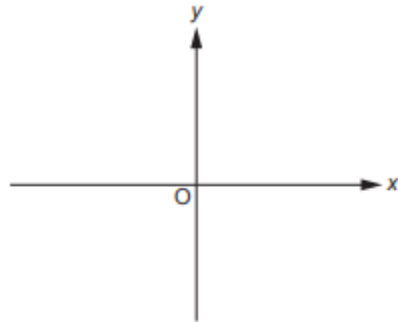
[3]

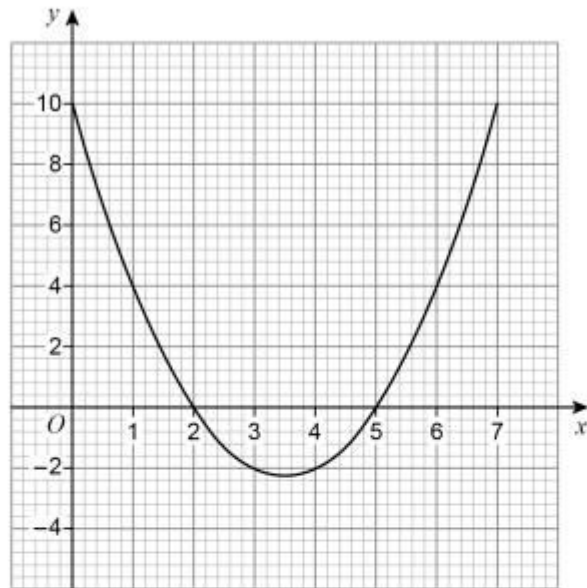**(b)** The sketch shows part of a graph which has equation $y = ax^2 + bx + c$.

Not to scale

Find the values of a, b and c.

(b) $a =$ ....

$b =$ ....

$c =$ .... [5]

7   Here is the graph of $y = x^2 - 7x + 10$ for values of x from 0 to 7

7 (a)   Write down the roots of $x^2 - 7x + 10 = 0$

[2 marks]

Answer _____

7 (b)   Write down the x-coordinate of the turning point of the curve.

[1 mark]

_____

Answer _____

21 (a)   Circle the point that is on the graph of $y = \dfrac{1}{x}$

[1 mark]

(−1, 1)   (0.3, 3)   (0.8, 0.2)   (2.5, 0.4)

21 (b)   Leo wants to draw the graph of $y = 2^x$ for values of x from 0 to 4
Here is his graph.
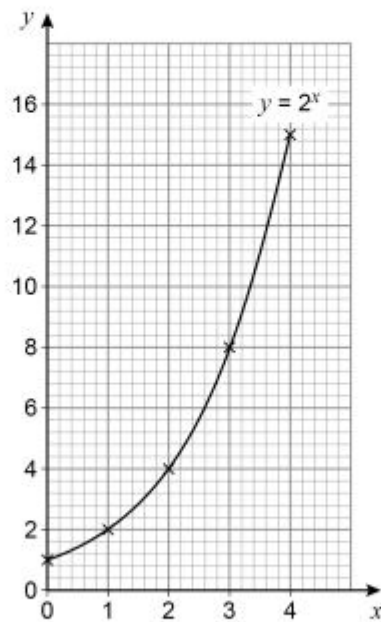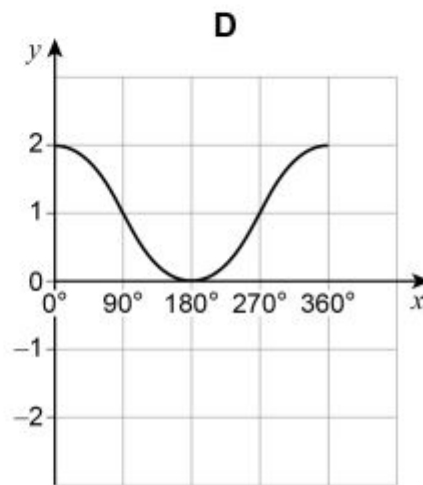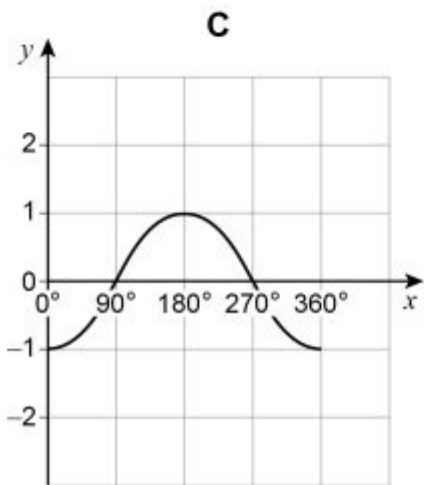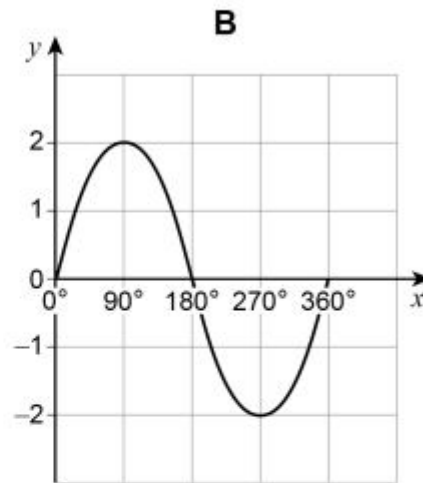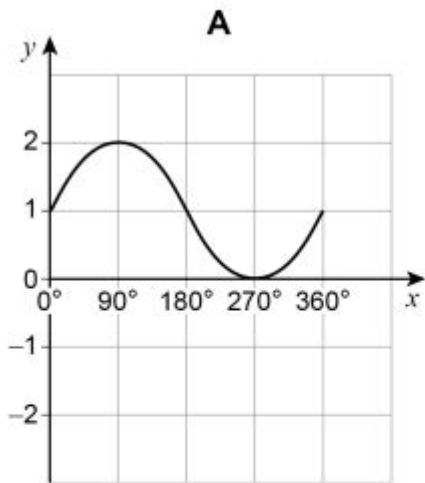

Make one criticism of his graph.

[1 mark]

_____

_____

13.

22   One of these is the graph of $y = 1 + \sin x$ for $0° \leqslant x \leqslant 360°$

Circle the letter above the correct graph.

[1 mark]

A

B

C

D

14.

24   A and B are points on a curve.

A is (2, 7)   B is (12, 0)

24 (a)   Work out the instantaneous rate of change of y with respect to x at point A.

[2 marks]

_____

_____

_____

_____

          Answer _____

24 (b)   The average rate of change of y with respect to x between points A and B is worked out.

Which statement is correct?

Tick **one** box.

[1 mark]
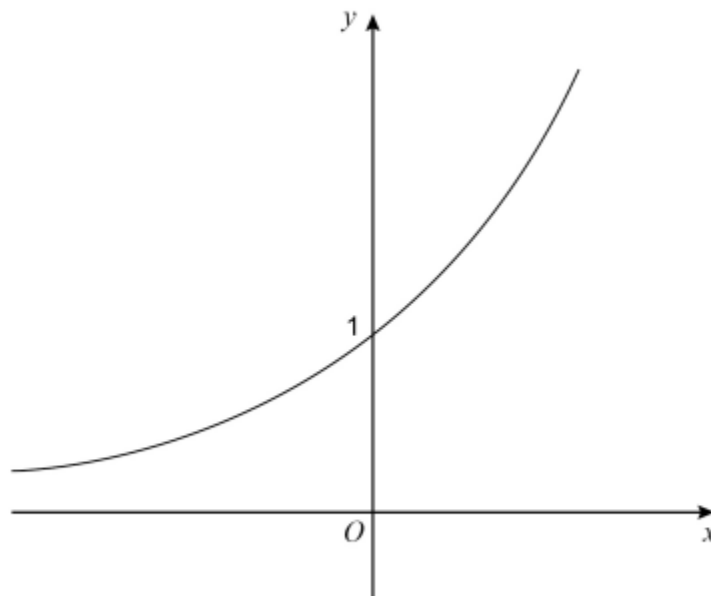
☐   It is positive.

☐   It is zero.

☐   It is negative.

☐   You cannot tell if it is positive or negative.

AQA GSCE – Tuesday 11 June 2019 – Paper 3 (Calculator) Higher Tier

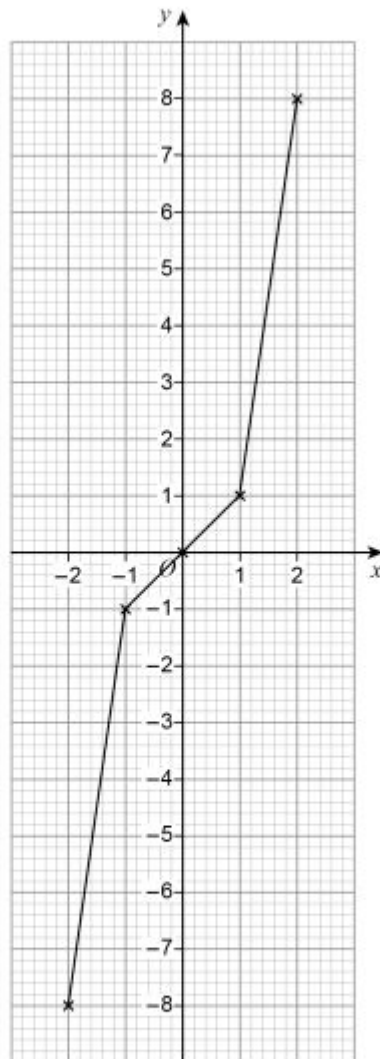**15.**

23   Here is a sketch of the curve $y = 2^x$

On the axes above, sketch the curve $y = 3^x$

[2 marks]

12   Lewis wants to draw the graph $y = x^3$ for values of x from –2 to 2
Here is his graph.

Make **one** criticism of his graph.

[1 mark]
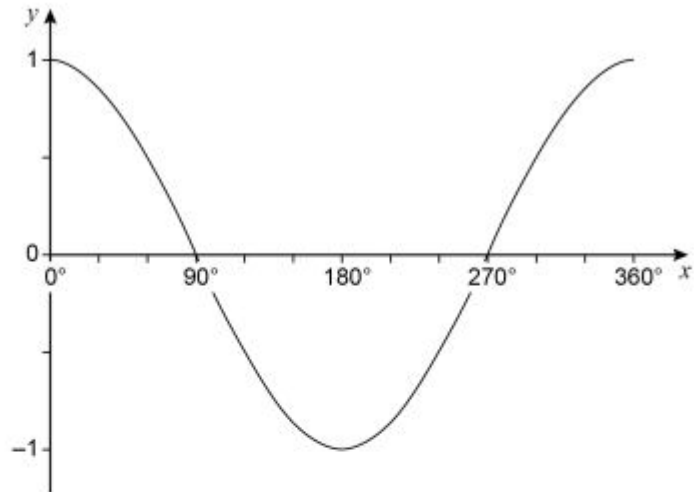
17.

25   Here is a sketch of the graph of $y = \cos x$ for values of x from 0° to 360°

25 (a) $\cos x = \cos 60°$

Work out the value of x when $90° \leqslant x \leqslant 360°$

[1 mark]

Answer _____ degrees

25 (b) $\cos x = -\cos 60°$

Work out the value of x when $180° \leqslant x \leqslant 360°$
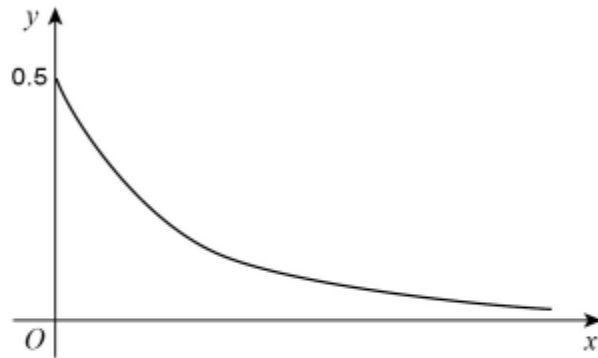
[1 mark]

Answer _____ degrees

18.

18   Nick sketches the graph of $y = 0.5^x$ for $x \geqslant 0$

Make **one** criticism of his sketch.
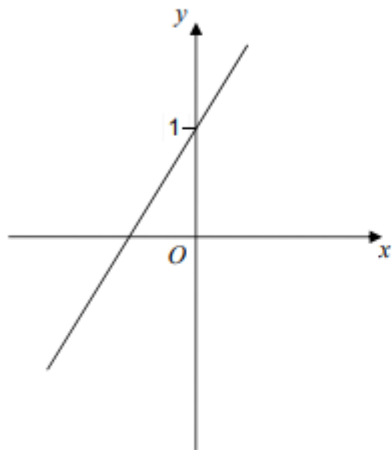
[1 mark]

_____

_____

19.

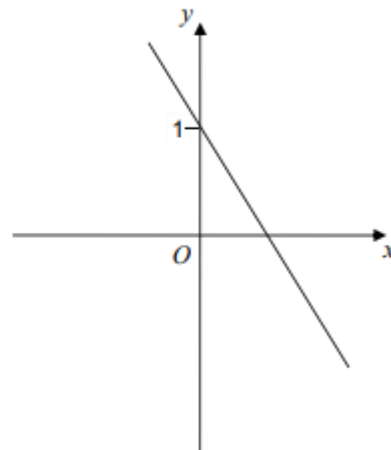4   One of these graphs is a sketch of $y = 1 - 2x$

Which one?

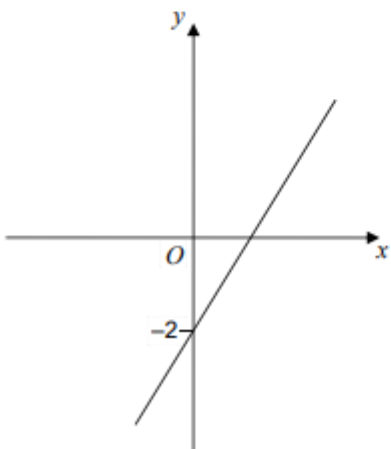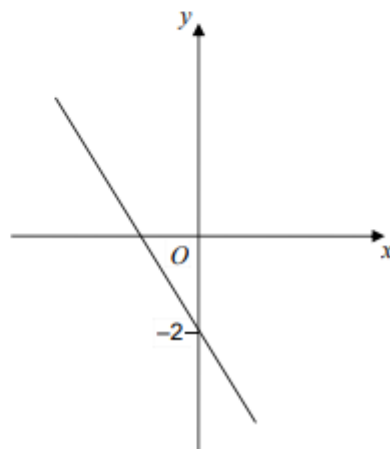Circle the correct letter.

[1 mark

A

B

C

D

20.

4   *y* is directly proportional to *x*.

Which graph shows this?

Circle the correct letter.

[1 mark]

A

B

C

D