Name: _____

# IGCSE (9–1) Maths new topics: Recognising graphs and trig graphs

**Date:**

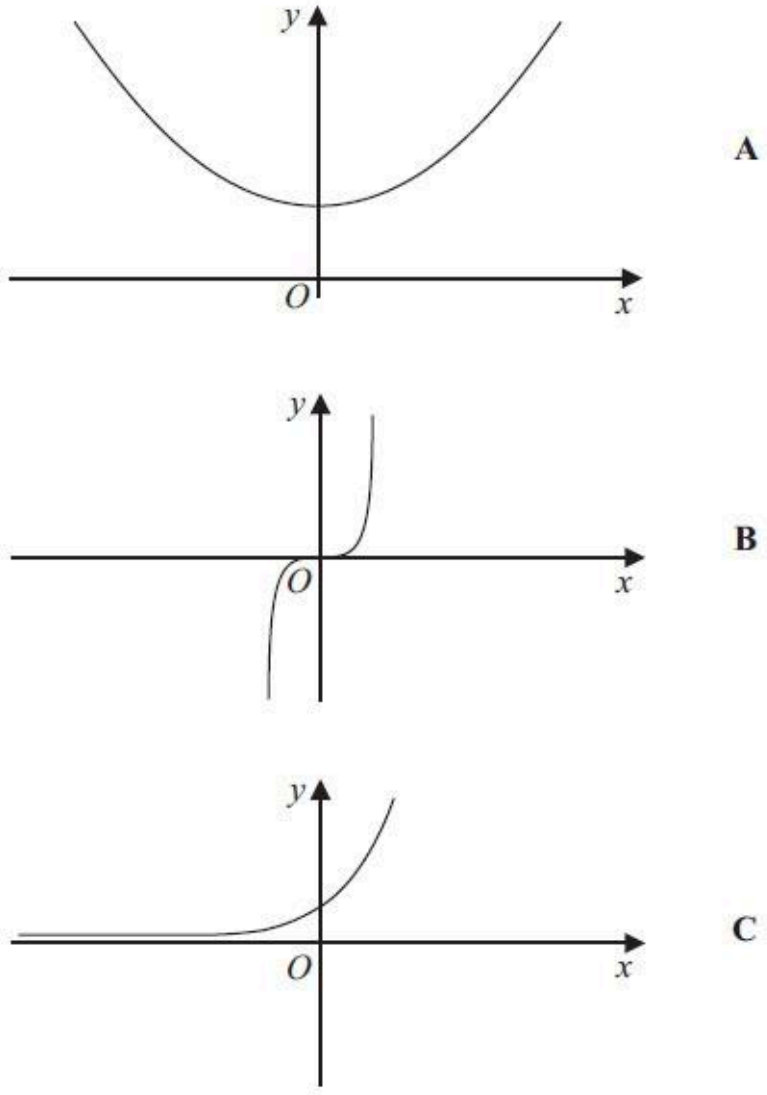
**Time:** 25 minutes

**Total marks available:** 19

**Total marks achieved:** _____

**[GCSE]**

**Q1.** Here are three graphs.




Here are four equations of graphs.

$y = x^3$ $\quad$ $y = x^2 + 4$ $\quad$ $y = \frac{1}{x}$ $\quad$ $y = 2^x$

Match each to the correct equation.

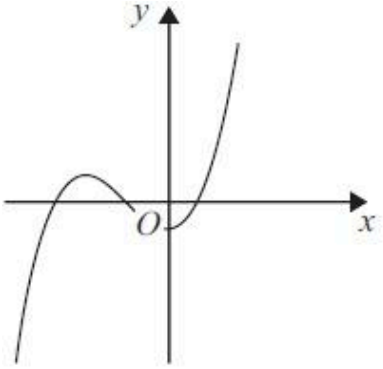
**A** and $y =$ . . . . . .

**B** and $y =$ . . . . . .

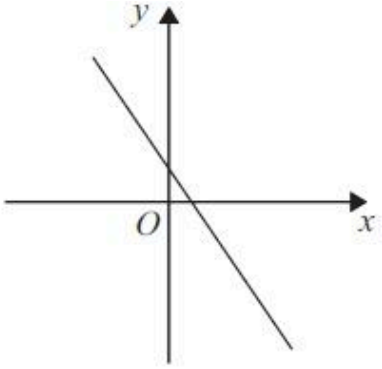
**C** and $y =$ . . . . . .

**(Total 3 marks)**

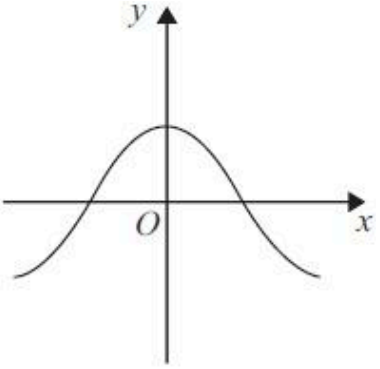
**Q2.** Here are nine graphs.



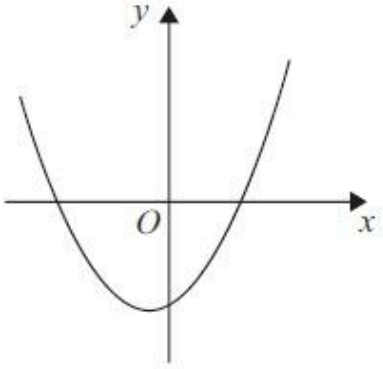

**Graph A**



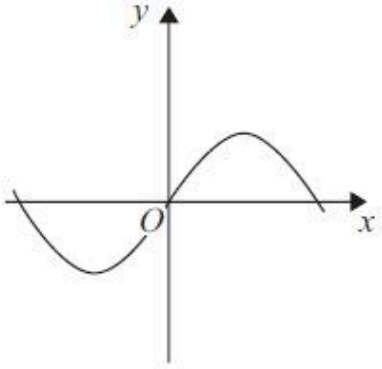

**Graph B**



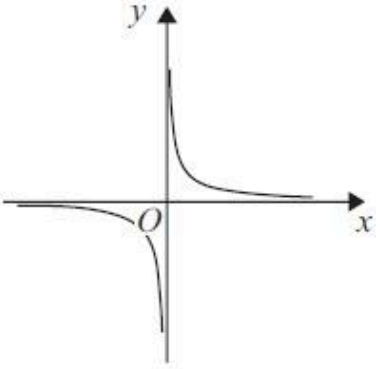

**Graph C**



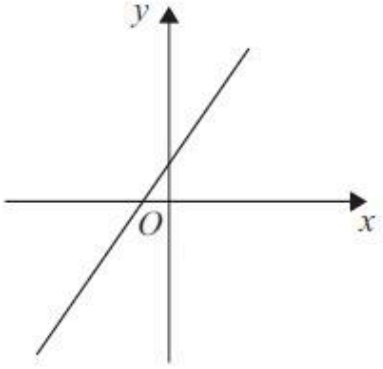

**Graph D**



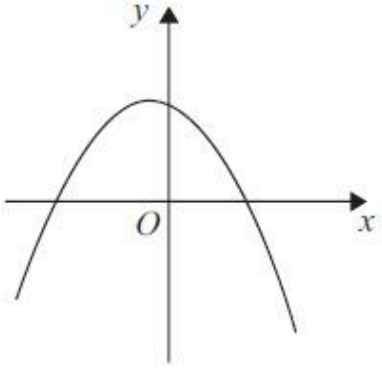

**Graph E**



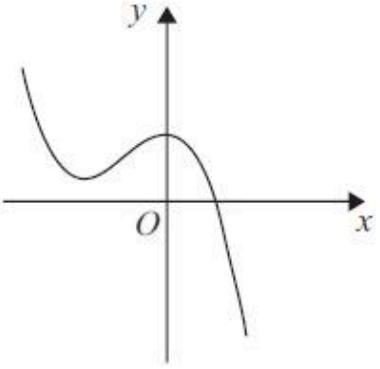

**Graph F**




**Graph G**




**Graph H**




**Graph I**

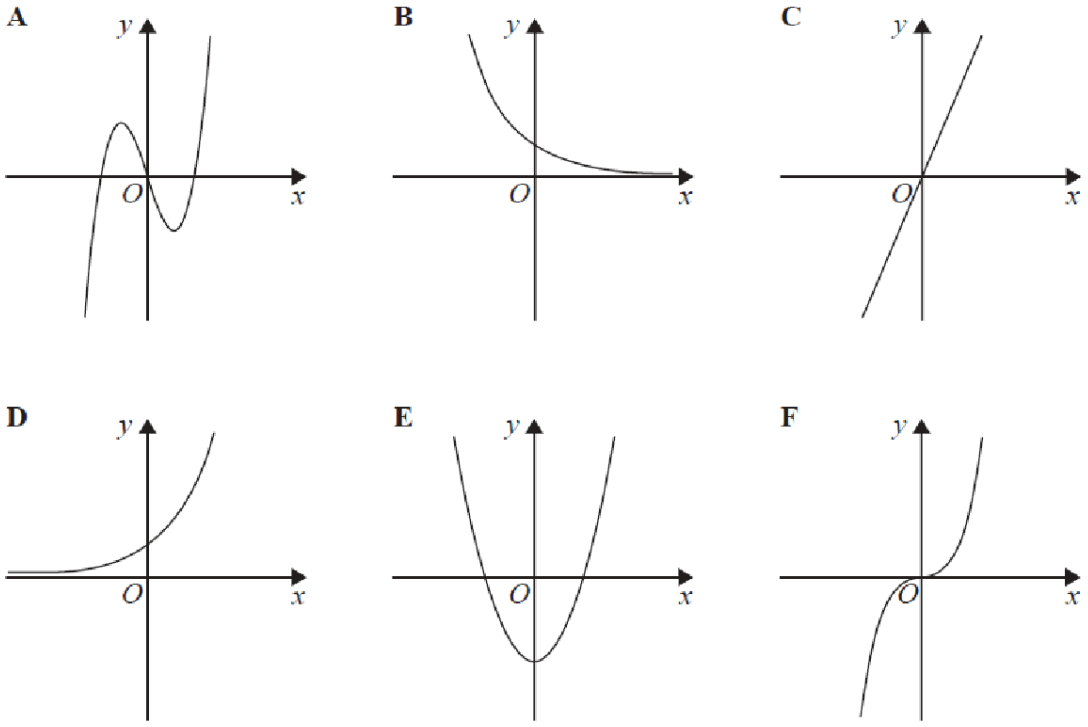
Complete the table below with the letter of the graph that could represent each given equation.

| Equation | Graph |
|---|---|
| $y = \sin x$ | |
| $y = 2 - 3x$ | |
| $y = x^2 + x - 6$ | |
| $y = x^3 + 3x^2 - 2$ | |

**(Total 3 marks)**

**[GCSE]**

**Q3.** Here are six graphs.




Write down the letter of the graph that could have the equation

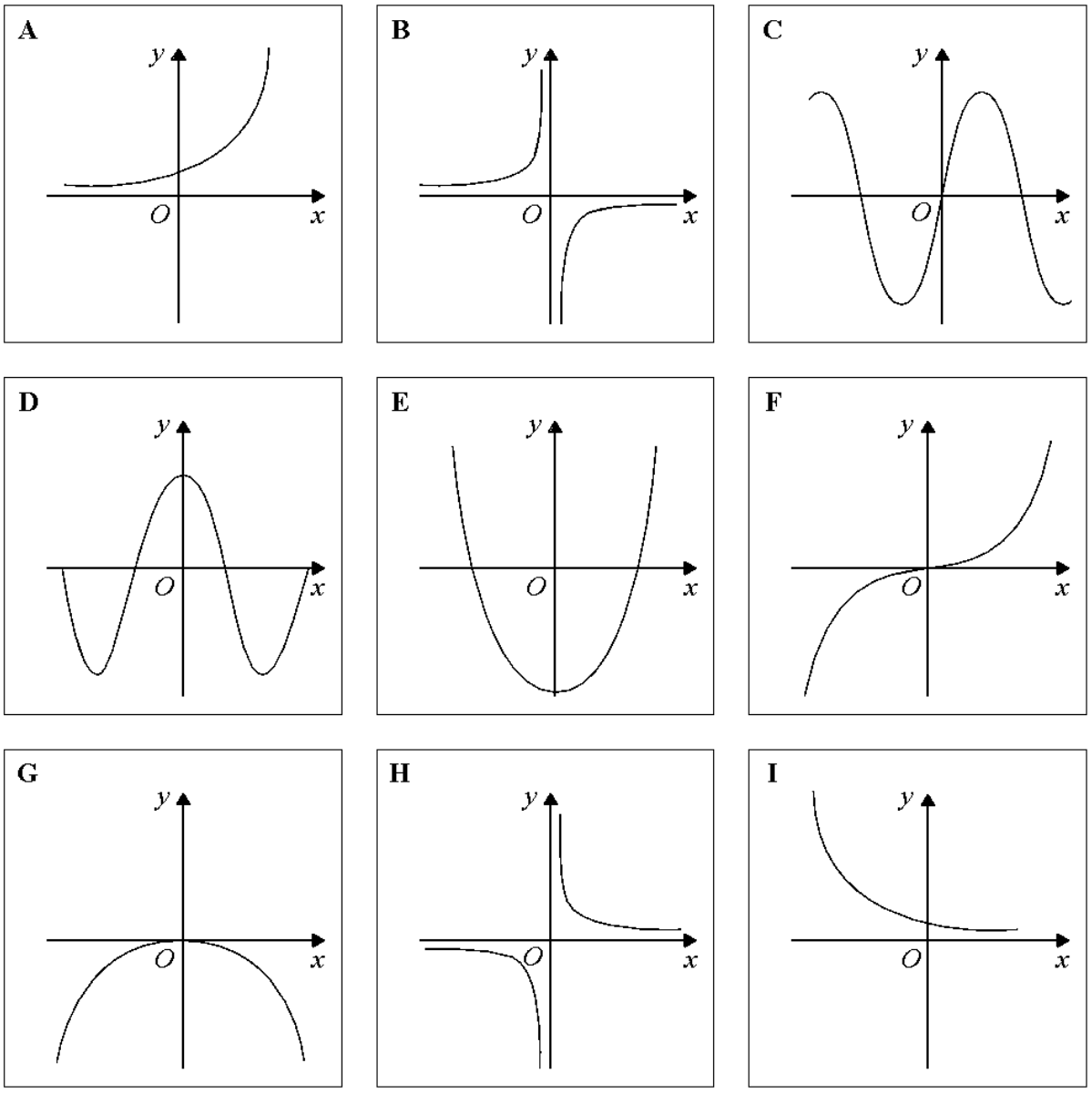
(i) $y = 2^x$

(ii) $y = x^3 - 3x$

**(Total 2 marks)**

**[GCSE]**

**Q4.** Here are some graphs.



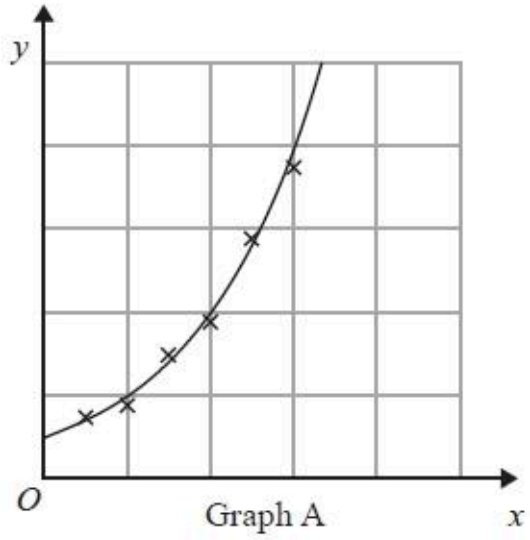

In the table below, match each equation with the letter of its graph.

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

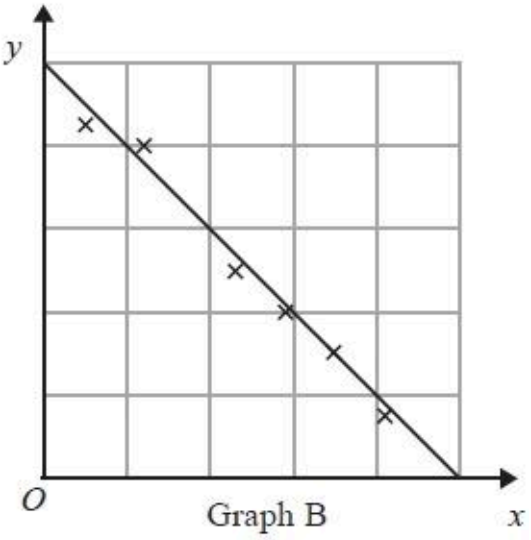
**(Total 3 marks)**

**[GCSE]**

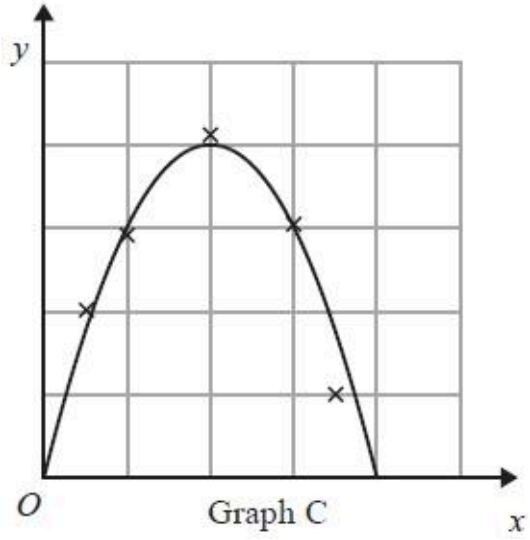
**Q5.** Here are some graphs that show relationships.
A curve or line of best fit has been drawn on each graph.




Graph A




Graph B




Graph C

The equation of each graph is one of the equations in the following list.

$y = 10 - 2x$ $y = 2^x$ $y = 2x - 10$ $y = 8x - 2x^2$ $y = 3x^2$

Give the equation of each graph.

Graph A .....

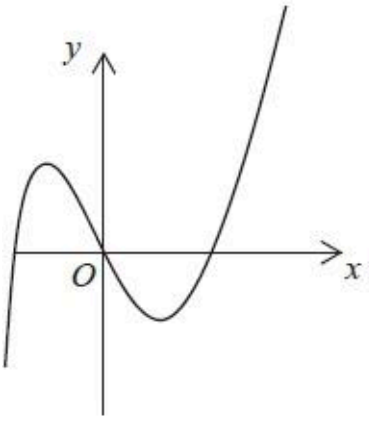
Graph B .....

Graph C .....

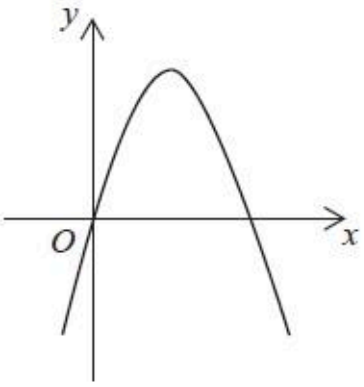
**(Total 3 marks)**

**[Awards]**

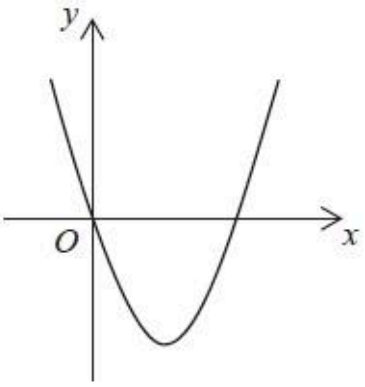
**Q6.** Here are some sketch graphs.



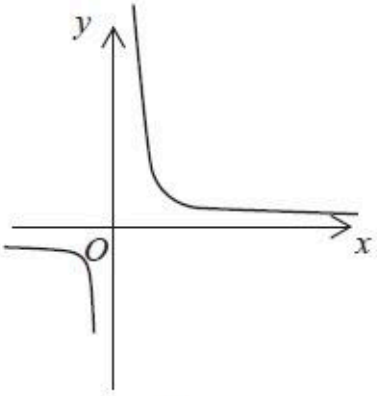

**A**



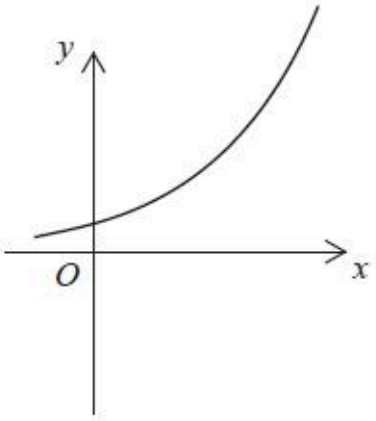

**B**




**C**




**D**




**E**

The table shows the equations of some graphs.

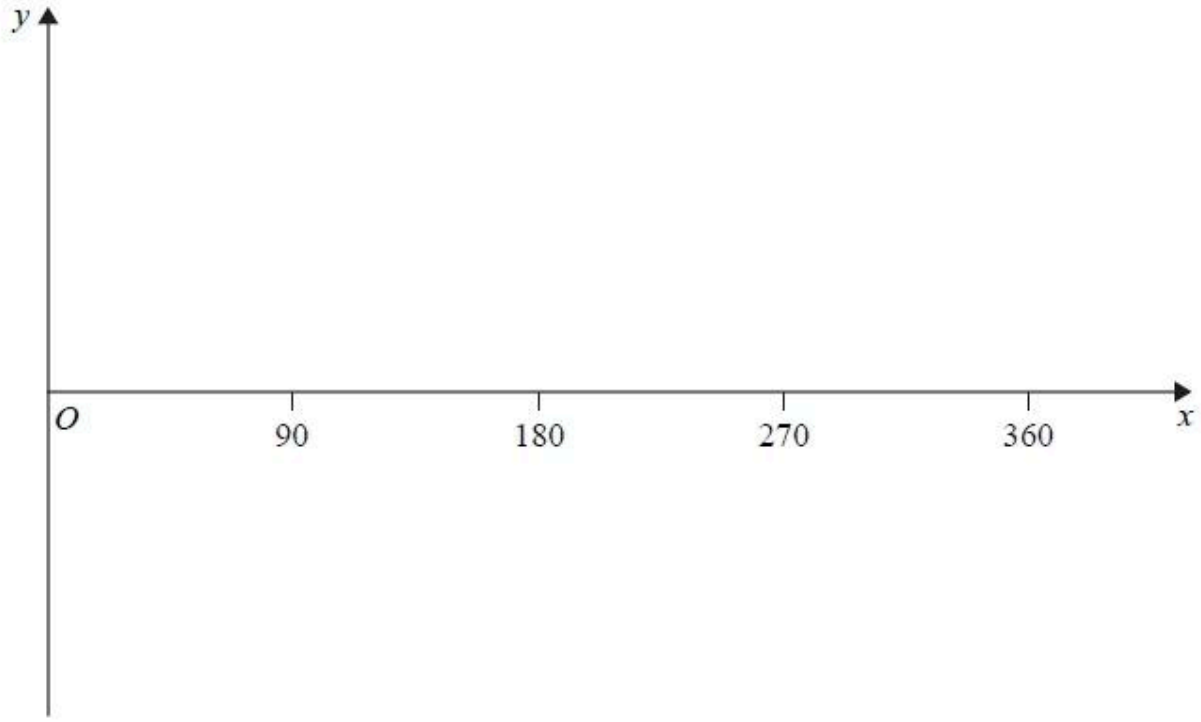
| Equation | Graph |
|---|---|
| $y = 4^x$ | |
| $y = -x(x - 4)$ | |
| $y = x^3 - x^2 - 2x$ | |
| $xy = 8$ | |
| $y = x^2 - 4x$ | |

Match the letter of the graph with its equation.

**(Total 3 marks)**

**[GCSE]**

**Q7.** Sketch the graph of $y = \cos x^{o}$ for $0 \leqslant x \leqslant 360$




**(Total 2 marks)**

**Mark Scheme**

**Q1.**

| | | Working | Answer | Mark | Notes |
|---|---|---|---|---|---|
| | | | A and $y = x^2+4$<br>B and $y = x^3$<br>C and $y = 2^x$ | 3 | B3 for all correct<br>(B2 for 2 correct)<br>(B1 for 1 correct) |

**Q2.**

| Question | Working | Answer | Mark | AO | Notes |
|---|---|---|---|---|---|
| | | E, B, D, A | 3 | AO1 | B3 All correct<br>B2 for 3 correct<br>B1 for 2 correct |

**Q3.**

| Mock Paper 1MA1: 3H | | | | | |
|---|---|---|---|---|---|
| Question | | Working | Answer | Mark | Notes |
| | (i) | | D | 1 | B1 cao |
| | (ii) | | A | 1 | B1 cao |

**Q4.**

| Paper: 1MA1/2H | | | | |
|---|---|---|---|---|
| Question | Working | Answer | Mark | Notes |
| | | C, F, A, H | B3<br>[B2<br>[B1 | for a fully correct table<br>for 2 or 3 correct]<br>for 1 correct] |

**Q5.**

| 5MB1H/01 June 2015 | | | | |
|---|---|---|---|---|
| Question | Working | Answer | Mark | Notes |
| | | A: $y = 2^x$<br>B: $y = 10 - 2x$<br>C: $y = 8x - 2x^2$ | 3 | B1cao<br>B1cao<br>B1cao |

**Q6.**

| Award in Algebra_AAL30 | | | | | |
|---|---|---|---|---|---|
| Question | | Working | Answer | Mark | Notes |
| | | | E, B, A, D, C | 3 | B3 for all 5 correct<br>B2 for 3 or 4 correct<br>B1 for 1 or 2 correct |

**Q7. [part a only]**

| Question | Working | Answer | Notes | |
|---|---|---|---|---|
| (a) | | sketch | B1 | for correct shape for $0 \leqslant x \leqslant 360$ |
| | | | B1 | for fully correct sketch with labels |
| (b)(i) | | sketch | B1 | cao |
| (ii) | | sketch | B1 | cao |