

1 Using a calculator (powers, roots and memory)

Use your calculator to find the answers. Show your calculator keys. Give your answer correct to six significant figures where appropriate.

- 1 5.2^2 1.....
- 2 $\sqrt{38.2}$ 2.....
- 3 1.89^6 3.....
- 4 $\sqrt[3]{873}$ 4.....
- 5 $\sqrt[5]{723}$ 5.....
- 6 $27^{-\frac{1}{4}}$ 6.....
- 7 $1.6^{-\frac{2}{3}}$ 7.....
- 8 $\sqrt{2.7^3}$ 8.....
- 9 10^{-3} 9.....
- 10 $(-4)^3$ 10.....

11 $y = 3x^4 + 2x^3 - 6x^2$
 Calculate the value of y when $x = 1.29$.
 Use an efficient calculator method.

11.....

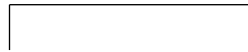
12 $y = 4x^5 - 3x^4 - 2x^3 + 8$
 Calculate the value of y when $x = -1.71$.
 Use an efficient calculator method.

12.....

Minimum mark	10	8	6	4	
Circle grade	A	B	C	D	E

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2 Standard form



Write the following numbers in standard form:

- | | | | |
|---|-------------|--------|--------------------------|
| 1 | 7420 | 1..... | <input type="checkbox"/> |
| 2 | 538 | 2..... | <input type="checkbox"/> |
| 3 | 0.0732 | 3..... | <input type="checkbox"/> |
| 4 | 681.4 | 4..... | <input type="checkbox"/> |
| 5 | 0.0006 | 5..... | <input type="checkbox"/> |
| 6 | 0.0403 | 6..... | <input type="checkbox"/> |
| 7 | 630 000 000 | 7..... | <input type="checkbox"/> |
| 8 | 0.0000728 | 8..... | <input type="checkbox"/> |

Write the following as ordinary numbers:

- | | | | |
|----|-------------------------|---------|--------------------------|
| 9 | 3.6 x 10 ³ | 9..... | <input type="checkbox"/> |
| 10 | 7.28 x 10 ⁵ | 10..... | <input type="checkbox"/> |
| 11 | 1.54 x 10 ⁴ | 11..... | <input type="checkbox"/> |
| 12 | 8.87 x 10 ⁻² | 12..... | <input type="checkbox"/> |
| 13 | 3.72 x 10 ⁻¹ | 13..... | <input type="checkbox"/> |
| 14 | 8.4 x 10 ⁻⁵ | 14..... | <input type="checkbox"/> |
| 15 | 6.1 x 10 ⁻³ | 15..... | <input type="checkbox"/> |
| 16 | 5.43 x 10 ⁴ | 16..... | <input type="checkbox"/> |

Give the answers to the following:

- a In standard form (correct to three significant figures).
- b As an ordinary number (correct to six significant figures where appropriate). Show your calculator keys for question 17.

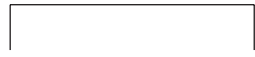
- | | | | | |
|----|--|---|-----------|--------------------------|
| 17 | $\frac{3.2 \times 10^7}{8.5 \times 10^3}$ | <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> | 17a | <input type="checkbox"/> |
| | | <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> | 17b..... | <input type="checkbox"/> |
| 18 | $(8.8 \times 10^{-2})^3$ | | 18a | <input type="checkbox"/> |
| | | | 18b..... | <input type="checkbox"/> |
| 19 | $4.852 \times 10^{-6} \times 3.68 \times 10^4$ | | 19a | <input type="checkbox"/> |
| | | | 19b..... | <input type="checkbox"/> |
| 20 | $5.328 \times 10^7 \times 2.63 \times 10^3$ | | 20a | <input type="checkbox"/> |
| | | | 20b..... | <input type="checkbox"/> |



Minimum mark	19	16	12	8	
Circle grade	A	B	C	D	E

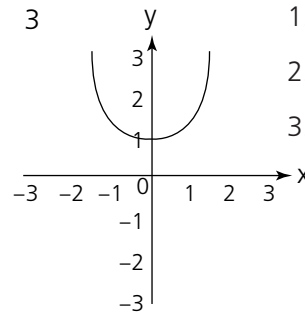
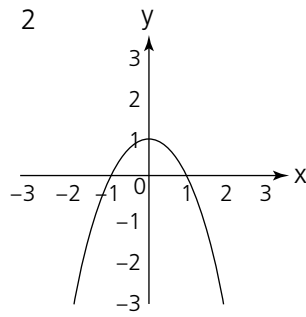
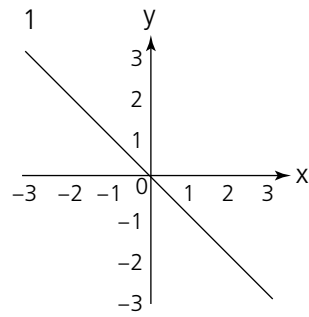
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22 Drawing graphs

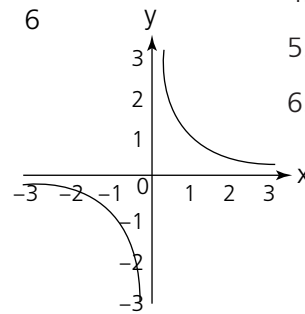
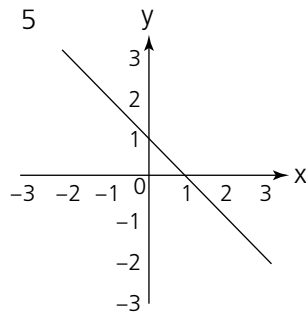
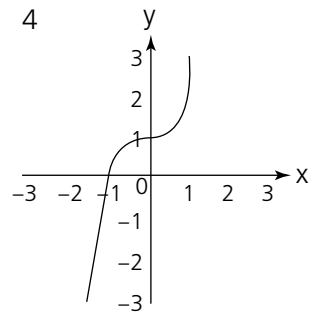


Label the following graphs using the **letters** shown below:

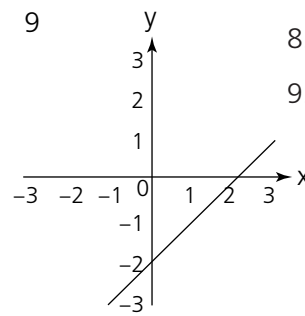
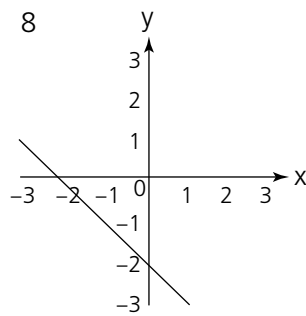
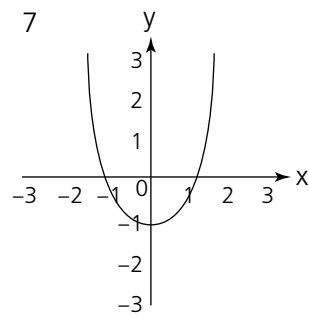
- | | | | | |
|---------------|----------------|-----------------|------------------|---------------------|
| a $y = x$ | d $y = -x$ | g $y = x^2$ | j $y = -x^2$ | m $y = x^3 + 1$ |
| b $y = x + 1$ | e $y = -x + 1$ | h $y = x^2 + 1$ | k $y = -x^2 + 1$ | n $y = -x^3 + 1$ |
| c $y = x - 2$ | f $y = -x - 2$ | i $y = x^2 - 1$ | l $y = -x^2 - 1$ | o $y = \frac{1}{x}$ |



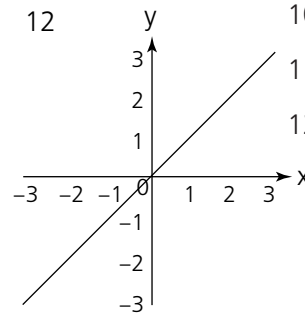
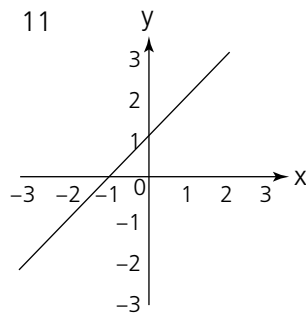
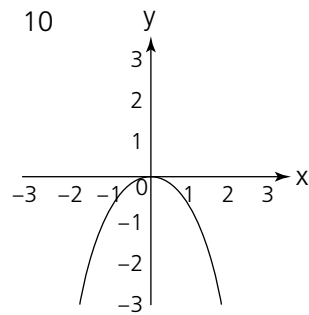
- 1.....
 2.....
 3.....



- 4.....
 5.....
 6.....



- 7.....
 8.....
 9.....



- 10.....
 11.....
 12.....

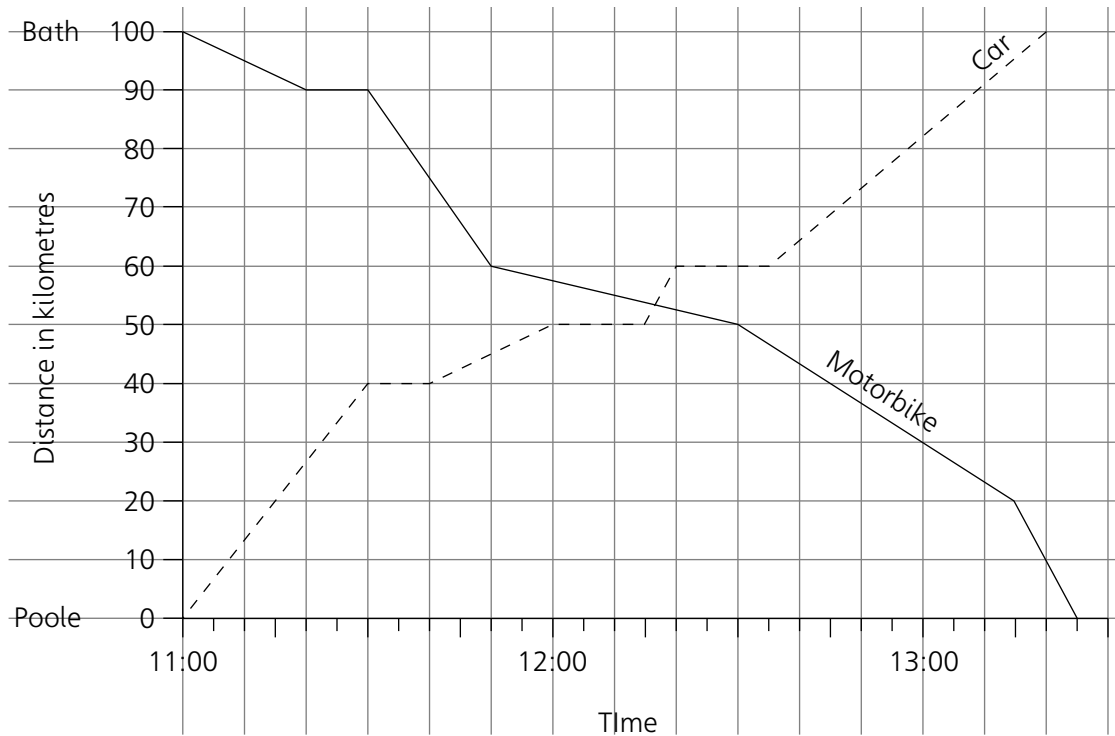


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23 Speed, time and distance graphs

This graph shows the journeys made by a car and a motorbike:



- 1 What time did the car leave Poole? 1.....
- 2 How many times did the car stop? 2.....
- 3 What time did the car arrive in Bath? 3.....
- 4 Between which times did the motorbike travel fastest? 4.....
- 5 What is the distance from Poole to Bath? 5.....
- 6 How far was the car from Bath at 11:30? 6.....
- 7 What time did the motorbike arrive in Poole? 7.....
- 8 What time did the car and motorbike pass each other? 8.....
- 9 What was the speed of the motorbike at:
 - a 11:15? 9a
 - b 13:00? b.....
- 10 What was the speed of the car at:
 - a 11:15? 10a
 - b 11:45? b.....

Minimum mark	10	8	6	4		_____
Circle grade	A	B	C	D	E	12