

Centre No.						Paper Reference						Surname	Initial(s)	
Candidate No.						5	5	3	8	/	1	8	Signature	

Paper Reference(s)

5538/18

Edexcel GCSE

Mathematics B – 1388

Paper 18 (Non-Calculator)

Higher Tier

Monday 4 June 2007 – Afternoon

Time: 1 hour 15 minutes

Examiner's use only

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Team Leader's use only

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Materials required for examination

Ruler graduated in centimetres and millimetres, protractor, compasses, pen, HB pencil, eraser.
Tracing paper may be used.

Items included with question papers

Nil

Instructions to Candidates

In the boxes above, write your centre number, candidate number, your surname, initials and signature.

Check that you have the correct question paper.

Answer ALL the questions. Write your answers in the spaces provided in this question paper.

You must NOT write on the formulae page. Anything you write on the formulae page will gain NO credit.

If you need more space to complete your answer to any question, use additional answer sheets.

Information for Candidates

The marks for individual questions and the parts of questions are shown in round brackets: e.g. (2).

There are 19 questions in this question paper. The total mark for this paper is 62.

There are 16 pages in this question paper. Any blank pages are indicated.

Calculators must not be used.

Advice to Candidates

Show all stages in any calculations.

Work steadily through the paper. Do not spend too long on one question.

If you cannot answer a question, leave it and attempt the next one.

Return at the end to those you have left out.

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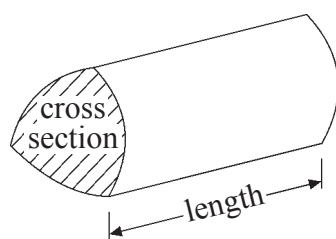
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GCSE Mathematics 1387/8

Formulae: Higher Tier

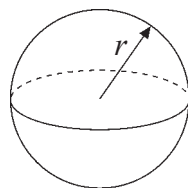
You must not write on this formulae page.
Anything you write on this formulae page will gain NO credit.

Volume of a prism = area of cross section \times length



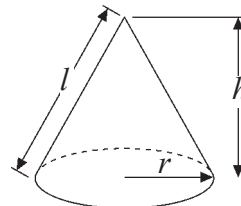
Volume of sphere = $\frac{4}{3}\pi r^3$

Surface area of sphere = $4\pi r^2$

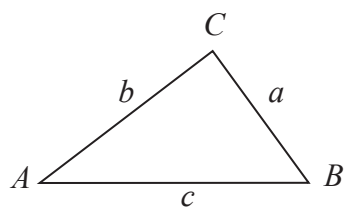


Volume of cone = $\frac{1}{3}\pi r^2 h$

Curved surface area of cone = $\pi r l$



In any triangle ABC



The Quadratic Equation

The solutions of $ax^2 + bx + c = 0$

where $a \neq 0$, are given by

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

Sine Rule $\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$

Cosine Rule $a^2 = b^2 + c^2 - 2bc \cos A$

Area of triangle = $\frac{1}{2}ab \sin C$



Leave
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Answer ALL NINETEEN questions.

Write your answers in the spaces provided.

You must write down all stages in your working.

You must NOT use a calculator.

1. A bag contains counters which are red or green or yellow or blue.

The table shows each of the probabilities that a counter taken at random from the bag will be red or green or blue.

Colour	Red	Green	Yellow	Blue
Probability	0.2	0.3		0.1

A counter is to be taken at random from the bag.

- (a) Work out the probability that the counter will be yellow.

(2)

The bag contains 200 counters.

- (b) Work out the number of red counters in the bag.

(2)

Q1

(Total 4 marks)



2. Kate buys 2 lollies and 5 choc ices for £6.50
Pete buys 2 lollies and 3 choc ices for £4.30

Work out the cost of one lolly.
Give your answer in pence.

Leave
blank

..... pence
(Total 3 marks)

Q2



3. Matthew wants to collect information about the time students take to travel to school.

Design a suitable question he could use on a questionnaire.

Q3

(Total 2 marks)

4. Mrs Raja set work for the students in her class.
She recorded the time taken, in minutes, for each student to do the work.
She used her results to work out the information in the table.

	Minutes
Shortest time	4
Lower quartile	14
Median	26
Upper quartile	30
Longest time	57

On the grid, draw a box plot to show the information in the table.

0102030405060

Minutes

Q4

(Total 2 marks)

5

Turn over

5. (i) Solve the inequality $3x \geq x + 7$

.....

(ii) x is a whole number.
Write down the smallest value of x that satisfies $3x \geq x + 7$

.....
(Total 3 marks)

Q5

6. The table shows some expressions.
 a , b , c and d represent lengths.
 π and 3 are numbers that have no dimensions.

$\pi a^2 + ab$	$3a^3$	$a(3d + b)$	$3ab + c$	πc^2d	$3(b + d)$	$\frac{\pi ab^2}{3d}$

Tick (✓) the boxes underneath the **three** expressions which could represent areas.

.....
(Total 3 marks)

Q6

7. The volume of this cube is 8 m^3 .
Change 8 m^3 to cm^3 .

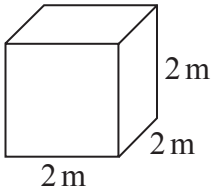


Diagram **NOT** accurately drawn

..... cm^3
(Total 2 marks)

Q7





<p>8. Write 126 as a product of its prime factors.</p>	Leave blank
<p>..... (Total 2 marks)</p>	Q8 <input type="text"/>
<p>9. Write as a power of 7</p> <p>(i) $7^8 \div 7^3$</p> <p>.....</p> <p>(ii) $\frac{7^2 \times 7^3}{7}$</p>	
<p>..... (Total 3 marks)</p>	Q9 <input type="text"/>



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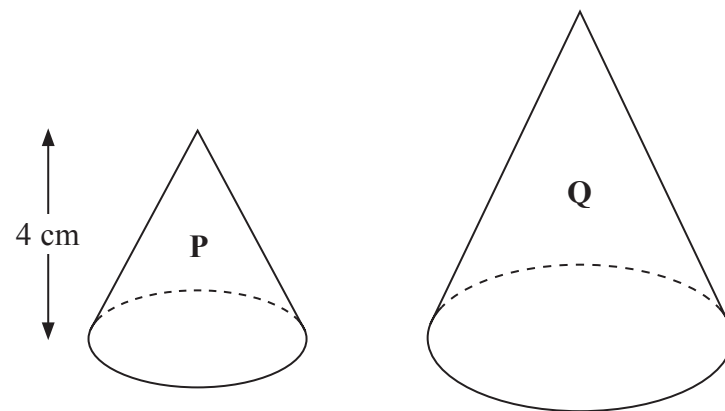


<p>10.</p> <div data-bbox="764 593 1144 934"> </div> <p>Diagram NOT accurately drawn</p> <p>The straight line L has equation $y = \frac{1}{2}x + 7$</p> <p>The straight line M is parallel to L and passes through the point (0, 3).</p> <p>Write down an equation for the line M.</p> <div data-bbox="1045 1222 1570 1329"> <p>.....</p> <p>(Total 2 marks)</p> </div>	<p>Leave blank</p> <p>Q10</p> <div data-bbox="1614 1261 1656 1329"></div>
<p>11. Work out $2\frac{2}{3} \times 1\frac{1}{4}$</p> <p>Give your answer in its simplest form.</p> <div data-bbox="1367 2041 1570 2148"> <p>.....</p> <p>(Total 3 marks)</p> </div>	<p>Q11</p> <div data-bbox="1614 2077 1656 2148"></div>



12.

Diagrams **NOT**
accurately drawn



Two cones, **P** and **Q**, are mathematically similar.
The total surface area of cone **P** is 24 cm^2 .
The total surface area of cone **Q** is 96 cm^2 .
The height of cone **P** is 4 cm.

(a) Work out the height of cone **Q**.

..... cm
(3)

The volume of cone **P** is 12 cm^3 .

(b) Work out the volume of cone **Q**.

..... cm^3
(2)

(Total 5 marks)

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Q12



13.

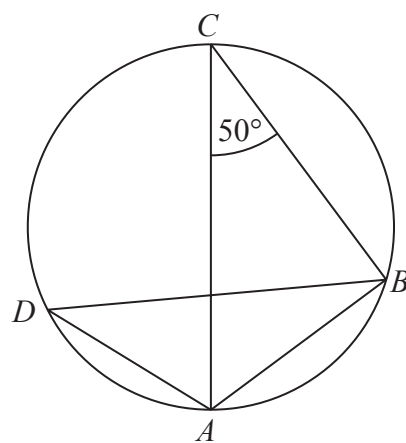


Diagram **NOT**
accurately drawn

A, B, C and D are points on a circle.
 AC is a diameter of the circle.
Angle $ACB = 50^\circ$.

(a) (i) Write down the size of angle ABC .

.....^o

(ii) Write down the size of angle ADB .

.....^o

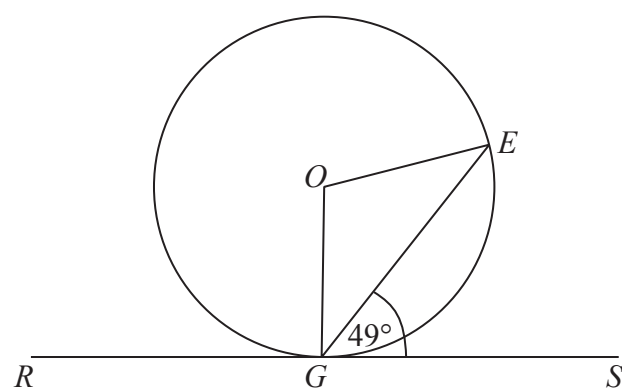
(2)

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Leave
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Diagram **NOT**
accurately drawn



E and G are points on a circle, centre O .
 RGS is a tangent to the circle.
Angle $EGS = 49^\circ$

- (b) Work out the size of angle GOE .
You must give reasons for your answer.

.....
(3)

(Total 5 marks)

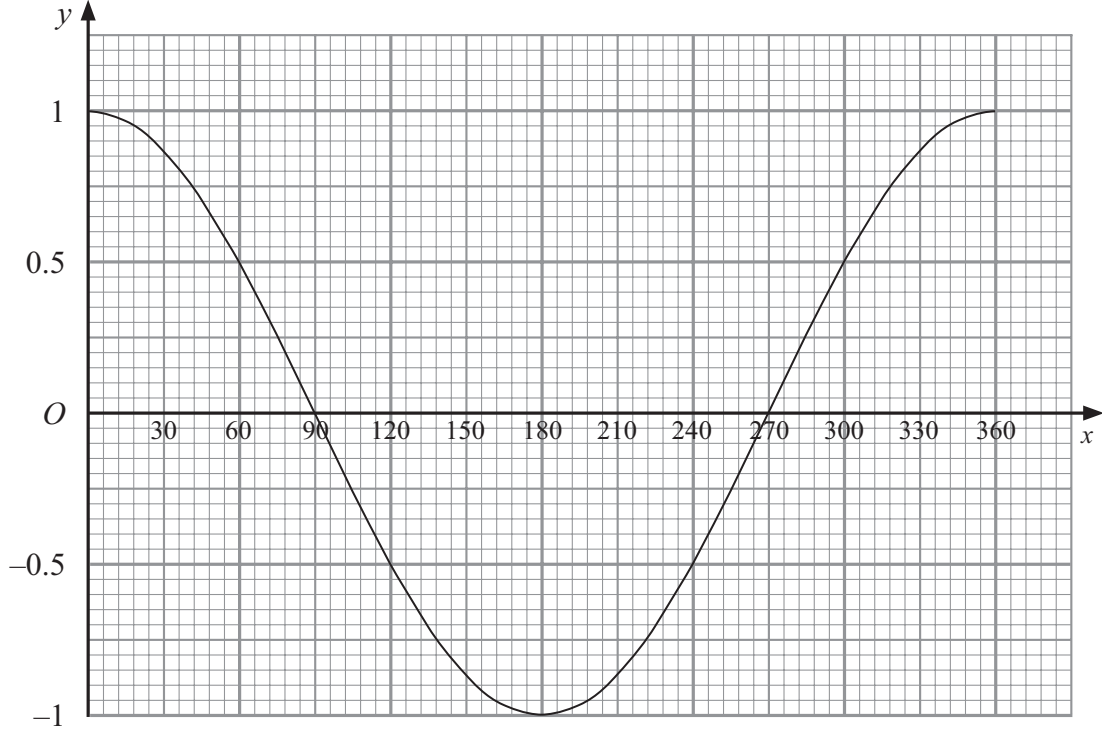
Q13



<p>14. (a) Expand $x(3 - 2x^2)$</p> <p>..... (2)</p> <p>(b) Factorise completely $12xy + 4x^2$</p> <p>..... (2)</p> <p>(c) Simplify $\frac{x-3}{x^2-9}$</p> <p>..... (2)</p> <p>(Total 6 marks)</p>	<p>Leave blank</p> <p>Q14</p> <div></div>
<p>15. (i) Expand and simplify $n^2 + (n + 1)^2$</p> <p>.....</p> <p>n is a whole number.</p> <p>(ii) Prove that $n^2 + (n + 1)^2$ is always an odd number.</p> <p>(Total 4 marks)</p>	<p>Q15</p> <div></div>



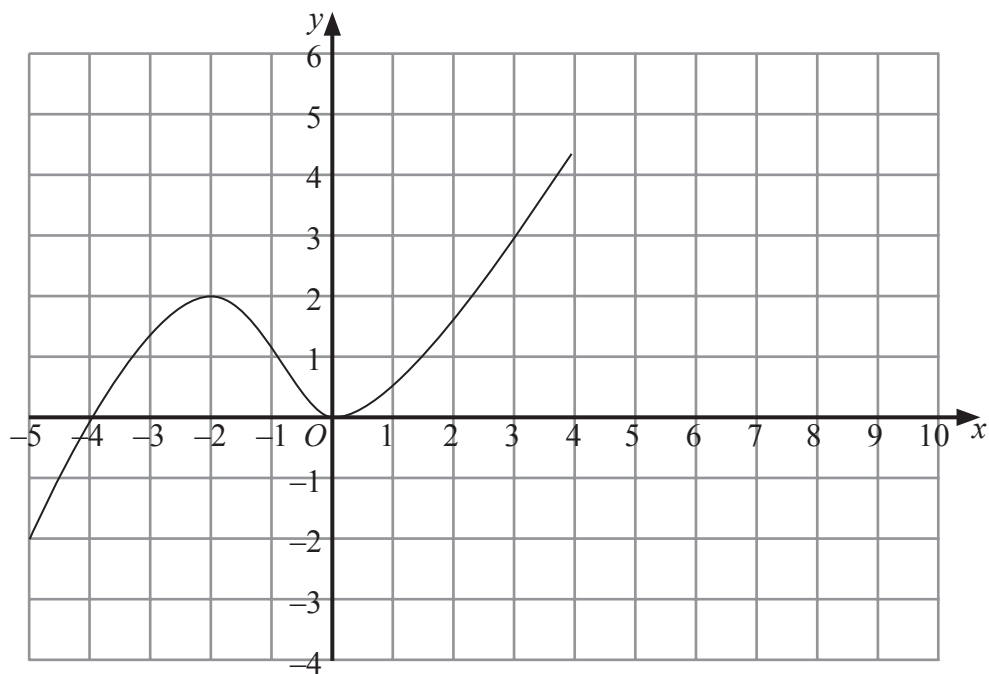


<p>16. $\frac{\sqrt{12}+15}{\sqrt{3}}$ can be written in the form $p+q\sqrt{3}$ where p and q are integers. Find the value of p and the value of q.</p> <p>$p =$</p> <p>$q =$</p> <p>(Total 2 marks)</p>	<p>Leave blank</p> <p>Q16</p> <div></div>
<p>17. Here is a graph of the curve $y = \cos x^\circ$ for $0 \leq x \leq 360$</p>  <p>Use the graph to solve $\cos x^\circ = 0.75$ for $0 \leq x \leq 360$</p> <p>.....</p> <p>(Total 2 marks)</p>	<p>Q17</p> <div></div>



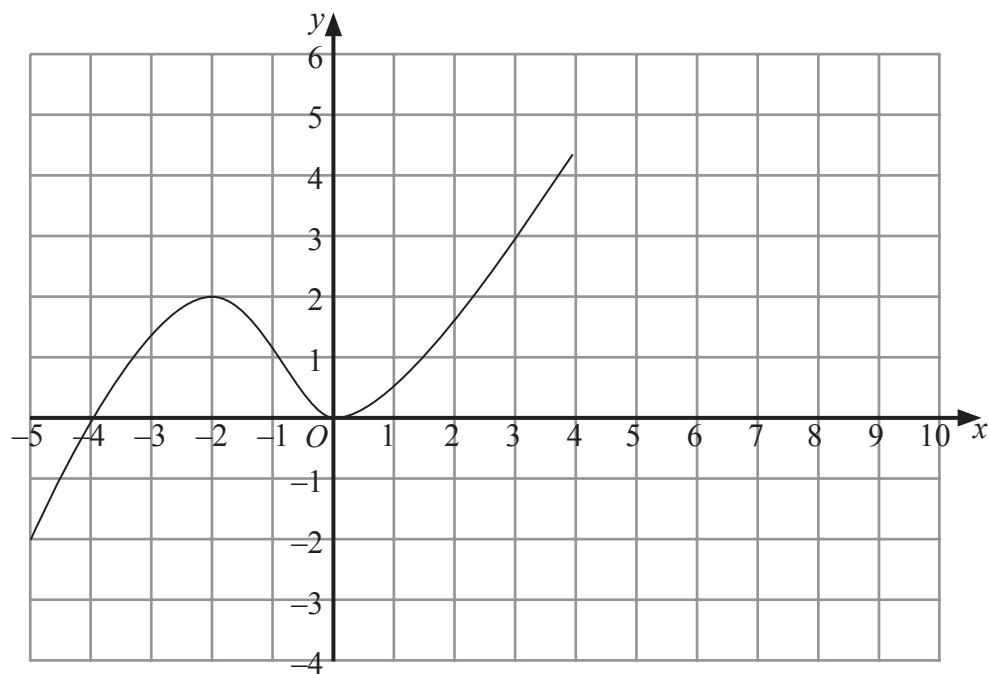
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18. The graph of $y = f(x)$ is shown on the grids.
(a) On this grid, sketch the graph of $y = f(x) + 2$



(2)

- (b) On this grid, sketch the graph of $y = -f(x)$



(2)

Q18

(Total 4 marks)



Q19

(Total 5 marks)

$x = \dots\dots\dots$, $y = \dots\dots\dots$

$x = \dots\dots\dots$, $y = \dots\dots\dots$

END



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