

PICK

NUMIX

Name:

.....

.....

Higher 7+

Paper 2

	Q	Topic	My Mark	Max Marks
Non Calculator	1			4
	2			5
Calculator	3			3
	4			4
	5			7
	6			5
				28

Revision list:

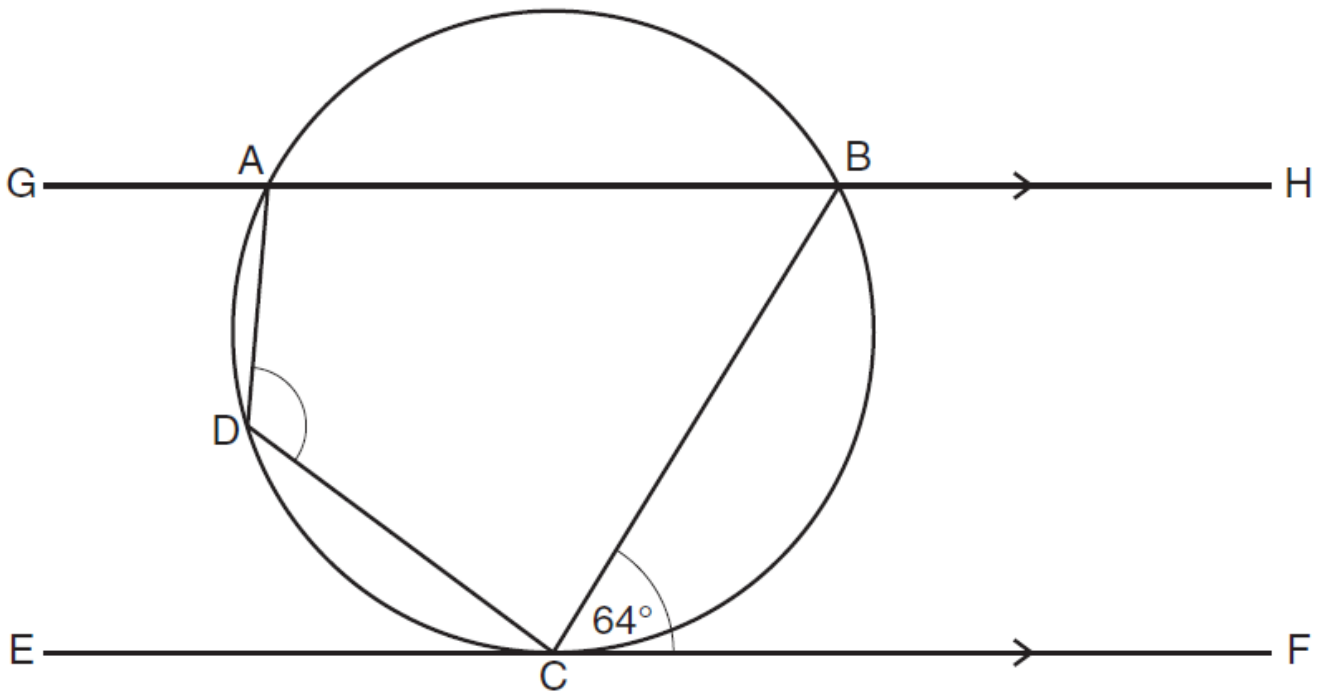
What I need to remember:

A Jagger

Question 1

The diagram shows a cyclic quadrilateral, ABCD.

Not to scale



Lines GABH and ECF are parallel.
Angle BCF = 64° .

Work out angle ADC.
Give a reason for each angle you work out.

Question 2

(a) Expand and simplify $(4 + \sqrt{3})(1 + \sqrt{3})$

.....
[2]

(b) Show that $\frac{3 + \sqrt{2}}{5 + \sqrt{8}}$ can be written as $\frac{11 - \sqrt{2}}{17}$

[3]

Question 3

Write $x^2 + 6x - 3$ in the form $(x + a)^2 + b$.

.....
[3]

Question 4

(a) Here are the first four terms of a sequence.

3 8 15 24

Write an expression for the n th term of this sequence.

.....
[3]

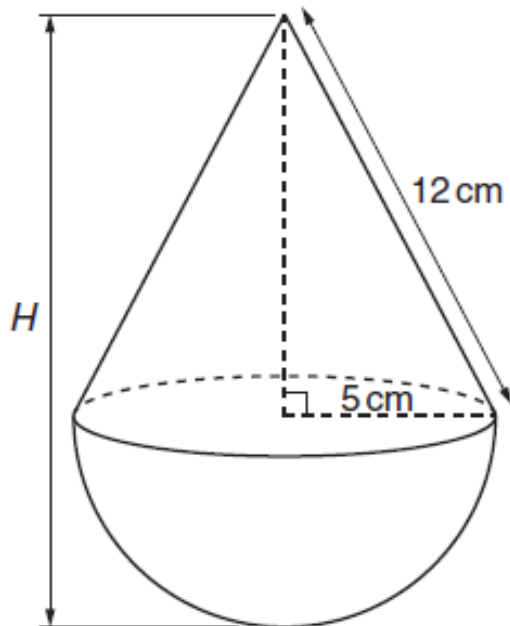
The n th term of a different sequence is $2^n + 5$

(b) Show that 36 is not a term of this sequence.

[1]

Question 5

A child's toy is made by joining a cone to a hemisphere.
The hemisphere and cone each have radius 5cm.
The slant height of the cone is 12cm.



$\text{Volume of a Cone} = \frac{1}{3}\pi r^2 h$ $\text{Volume of a Sphere} = \frac{4}{3}\pi r^3$

(a) Show that the total height, H, of the toy is 15.9cm.

[3]

(b) Calculate the total volume of the toy.

..... cm³
[4]

Question 6

(a) In the table, y is inversely proportional to x .

x	1	4
y	40	a

Work out the value of a .

.....
[2]

(b) In the table, y is directly proportional to x^2 .

x	10
y	250

Find an equation connecting y and x .

$y = \dots\dots\dots$
[3]