



UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
Cambridge Checkpoint

CANDIDATE
NAME

CENTRE
NUMBER

--	--	--	--	--

CANDIDATE
NUMBER

--	--	--	--

MATHEMATICS

1112/02

Paper 2

April/May 2007

1 hour

Candidates answer on the Question Paper.

Additional Materials: Calculator
 Protractor
 Ruler

READ THESE INSTRUCTIONS FIRST

Write your Centre number, candidate number and name on all the work you hand in.

Write in dark blue or black pen.

You may use a soft pencil for any diagrams, graphs or rough working.

Do not use staples, paper clips, highlighters, glue or correction fluid.

DO NOT WRITE IN ANY BARCODES.

Answer all questions.

You should show all your working in the booklet.

The total number of marks for this paper is 50.

At the end of the examination, fasten all your work securely together.

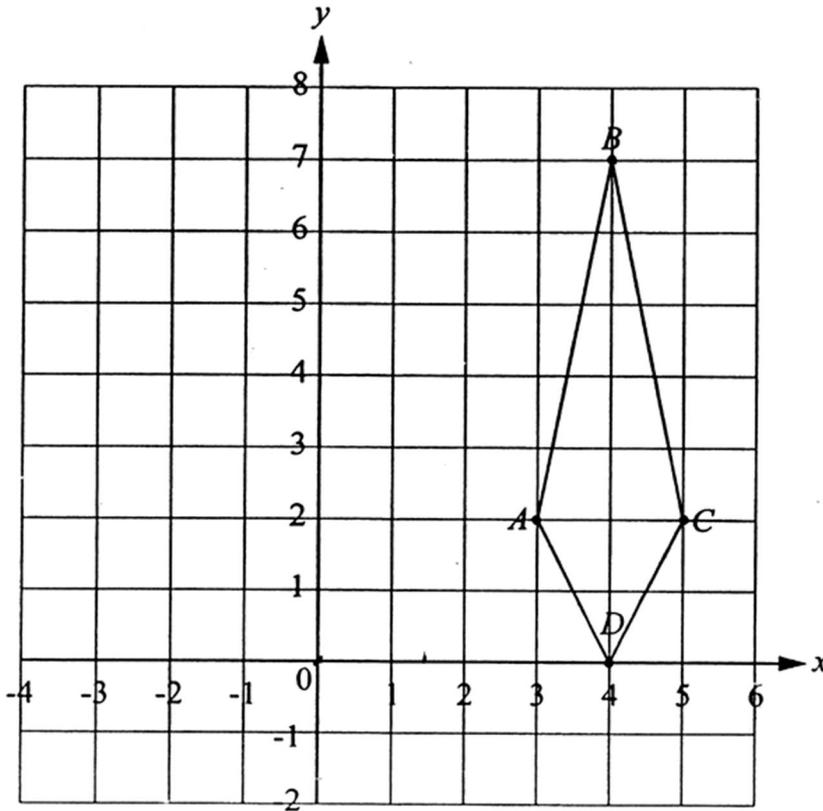
The number of marks is given in brackets [] at the end of each question or part question.

This document consists of **10** printed pages and **2** blank pages.





1 The diagram below shows a shape $ABCD$.



(a) What are the co-ordinates of C ?

(..... ,) [1]

(b) How many lines of symmetry has the shape $ABCD$?

..... [1]

(c) The shape is reflected in the y axis. What are the new co-ordinates of point A ?

(..... ,) [1]

(d) The shape $ABCD$ is rotated 90° anticlockwise about $D(4,0)$. What are the new co-ordinates of point B ?

(..... ,) [1]



2 Look at this sequence of numbers

2, 9, 16, 23, 30.

(a) Write down the next two numbers in this sequence.

..... [2]

(b) Write down the 10th number in this sequence.

..... [1]

(c) Put a ring around the expression for the n th term of this sequence.

$4n + 1$

$6n$

$5n + 1$

$7n - 5$

[1]

3 Use one word from the list below which correctly completes each statement.

acute	circumference	diameter	equilateral
hexagon	isosceles	kite	obtuse
parallelogram	pentagon	radius	trapezium

(a) The is the distance around a circle. [1]

(b) An angle is less than 90° . [1]

(c) A has five sides. [1]

(d) A is a quadrilateral with two pairs of equal sides and two pairs of equal angles. [1]

(e) An triangle has three equal sides. [1]



4 Twenty four students take a typing test. Their marks are shown below.

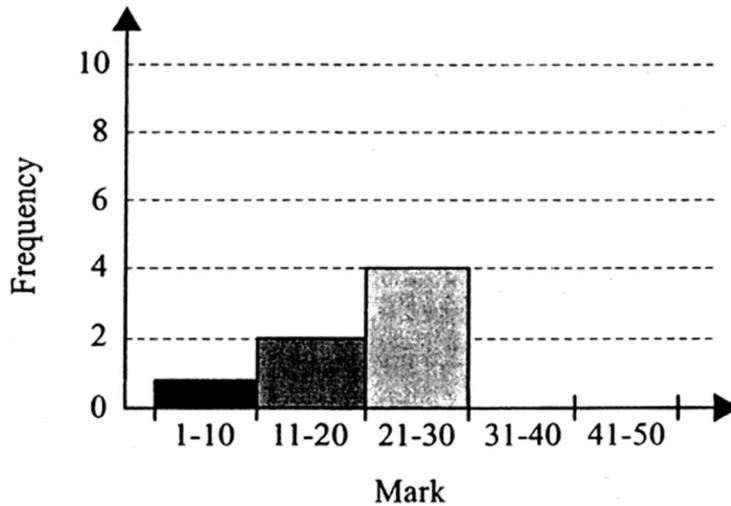
33	37	19	45	35	9
41	45	39	40	27	26
44	47	35	47	22	14
50	39	41	39	36	29

(a) Use the results to complete this table.

Mark	Frequency
1 – 10	1
11 – 20	2
21 – 30	4
31 – 40	
41 – 50	

[2]

(b) Use your table to complete the bar chart below.



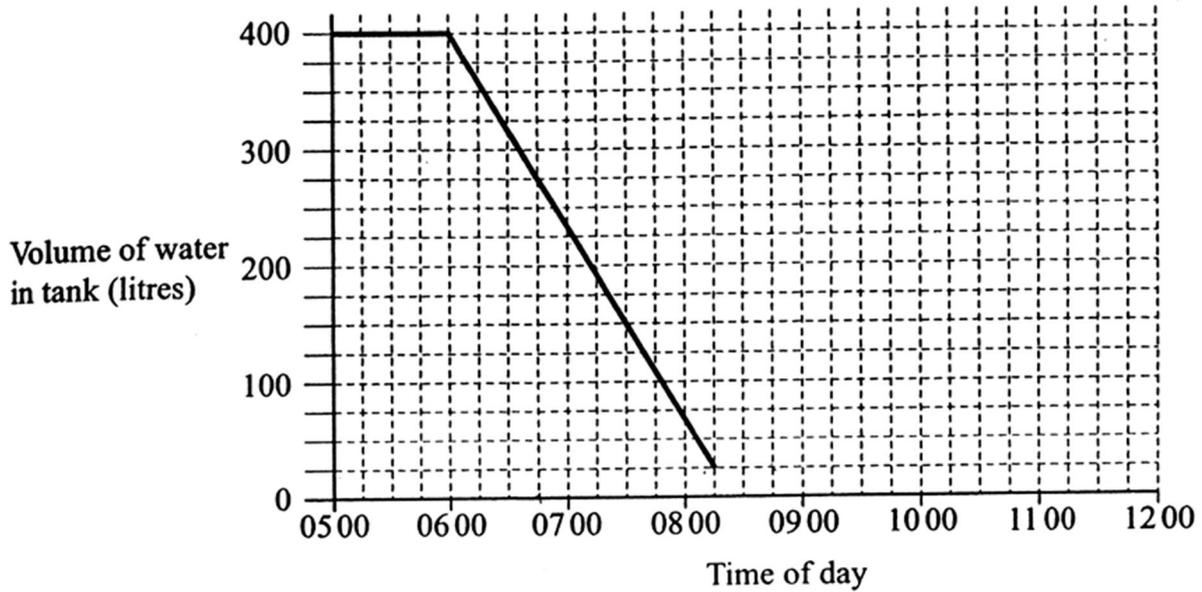
[2]

(c) A pie chart is drawn to illustrate this information. Work out the size of the angle which represents the 21–30 group.

..... [2]



- 5 Water starts to leak from a full 400 litre tank.
The graph shows the volume of the water in the tank during the day.



(a) Use the graph to work out

- (i) at what time the tank contains 275 litres of water.

..... [1]

- (ii) how much water is left in the tank at 0700.

..... litres [1]

- (b) A plumber stops the leak with 25 litres of water still in the tank.
At what time does the plumber stop the leak?

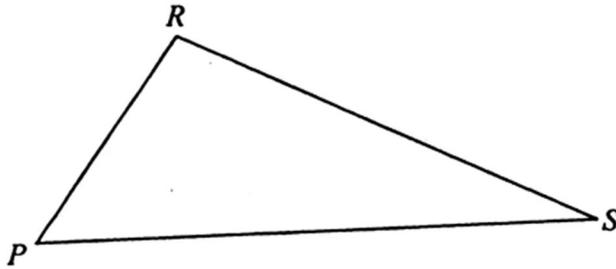
..... [1]

- (c) The plumber takes 30 minutes to repair the tank.
The tank then takes two hours to refill completely.
Illustrate this information on the graph above.

[2]

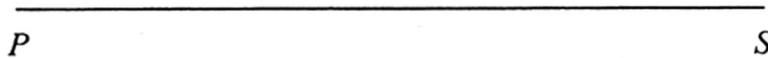


6 The diagram below shows a sketch of a field.



Angle PSR is 30° and the length of PR is 110 m.

The line PS has been drawn for you using a scale of 1 cm to represent 20 m



(a) (i) Measure the length of PS .

..... cm [1]

(ii) Use your result to work out the length of PS in the real field.

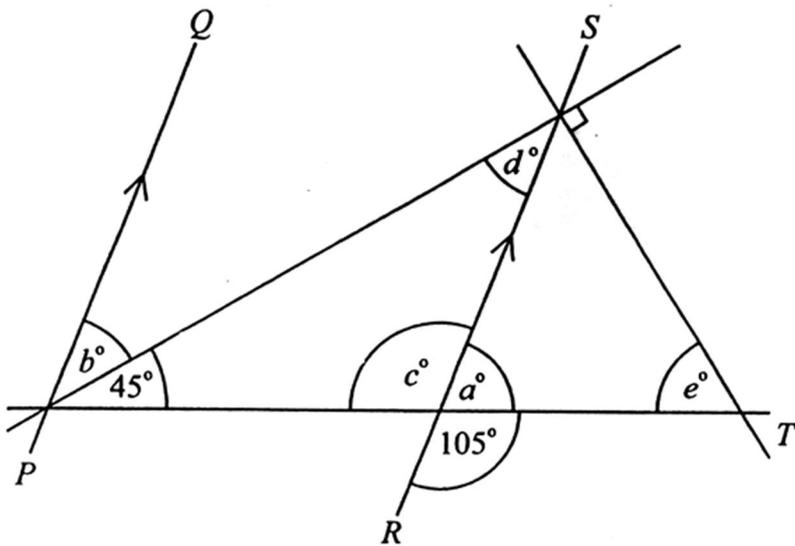
..... m [1]

(b) Complete the accurate drawing of triangle PSR .

[2]



7 In the diagram, which is not drawn accurately, PQ is parallel to RS .



NOT TO SCALE

Work out the sizes of angles a to e .

$a =$ [1]

$b =$ [1]

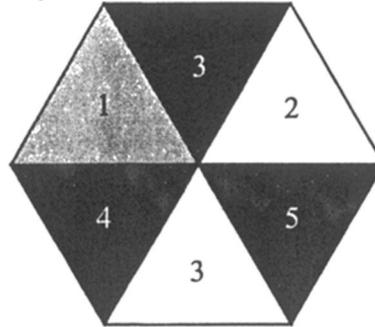
$c =$ [1]

$d =$ [1]

$e =$ [1]



8 A hexagonal spinner is shown below.
It is equally likely to land on any section.



What is the probability that the spinner will land on

(a) a black section,

..... [1]

(b) 1 or 2,

..... [1]

(c) 4,

..... [1]

(d) 6,

..... [1]

(e) an odd number.

..... [1]

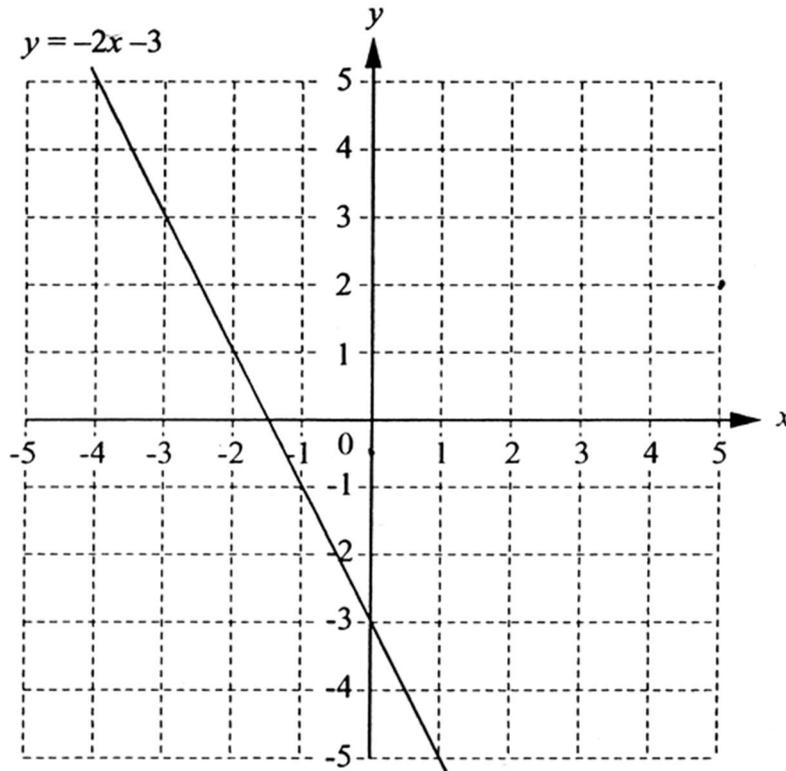


9 (a) Complete the table of values for $y = \frac{1}{2}x - \frac{1}{2}$.

x	-4	-3	0	1	5
y		-2	$-\frac{1}{2}$	0	

[2]

(b) Use your results to draw the graph of $y = \frac{1}{2}x - \frac{1}{2}$ on the grid below.



[2]

(c) The graph of $y = -2x - 3$ is drawn on the grid above.
Use the two graphs to solve the simultaneous equations

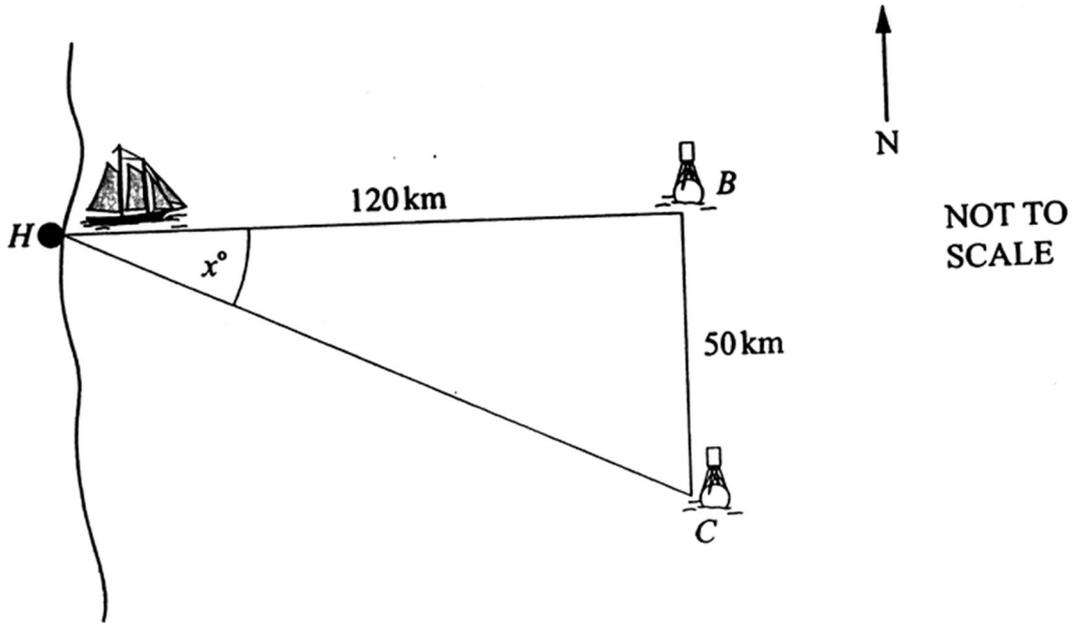
$$y = \frac{1}{2}x - \frac{1}{2} \quad \text{and} \quad y = -2x - 3.$$

$x =$ [1]

$y =$ [1]



10 The diagram shows the journey of a yacht.



The yacht leaves harbour, *H*, and sails 120 km due East to a buoy, *B*.
 At the buoy it turns and sails due South for 50 km to a second buoy, *C*.
 Here it turns and sails directly back to the harbour.

(a) Use Pythagoras' rule to work out the length of the final part of the journey, *CH*.

..... km [3]

(b) Use trigonometry to work out the size of the angle marked x° .

$x =$ [3]