Paper Reference(s)

5383H/10

Edexcel GCSE

Mathematics (Modular) – 2381

Paper 10 (Calculator)

Higher Tier

Unit 2 Stage 2

Monday 13 June 2011 – Afternoon

Time: 30 minutes

Materials required for examination
Ruler graduated in centimetres and
millimetres, protractor, compasses,
pen, HB pencil, eraser, calculator.
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 9 questions in this question paper. The total mark for this paper is 25.
There are 8 pages in this question paper. Any blank pages are indicated.
Calculators may be used.
If your calculator does not have a π button, take the value of π to be 3.142 unless the question instructs otherwise.

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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edexcel
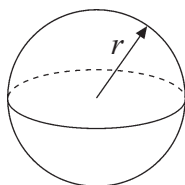advancing learning, changing lives

Formulae: Higher Tier

Volume of a prism = area of cross section × length
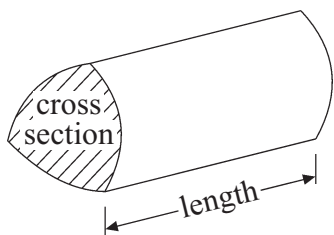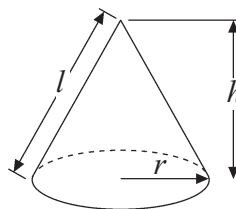

Volume of sphere $= \frac{4}{3}\pi r^3$

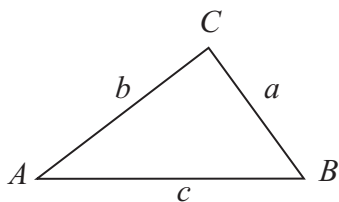**Surface area of sphere** $= 4\pi r^2$

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

Curved surface area of cone $= \pi rl$

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 $\dfrac{a}{\sin A} = \dfrac{b}{\sin B} = \dfrac{c}{\sin C}$

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

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

Answer ALL NINE questions.

Write your answers in the spaces provided.

You must write down all stages in your working.

1. Simplify $4a + 3b + 2a - 7b$

....   **Q1**

(Total 2 marks)

2. Hasan is a salesman.
Each week he is paid £400 plus 7.5% of his weekly sales.
Last week, his weekly sales were £3600
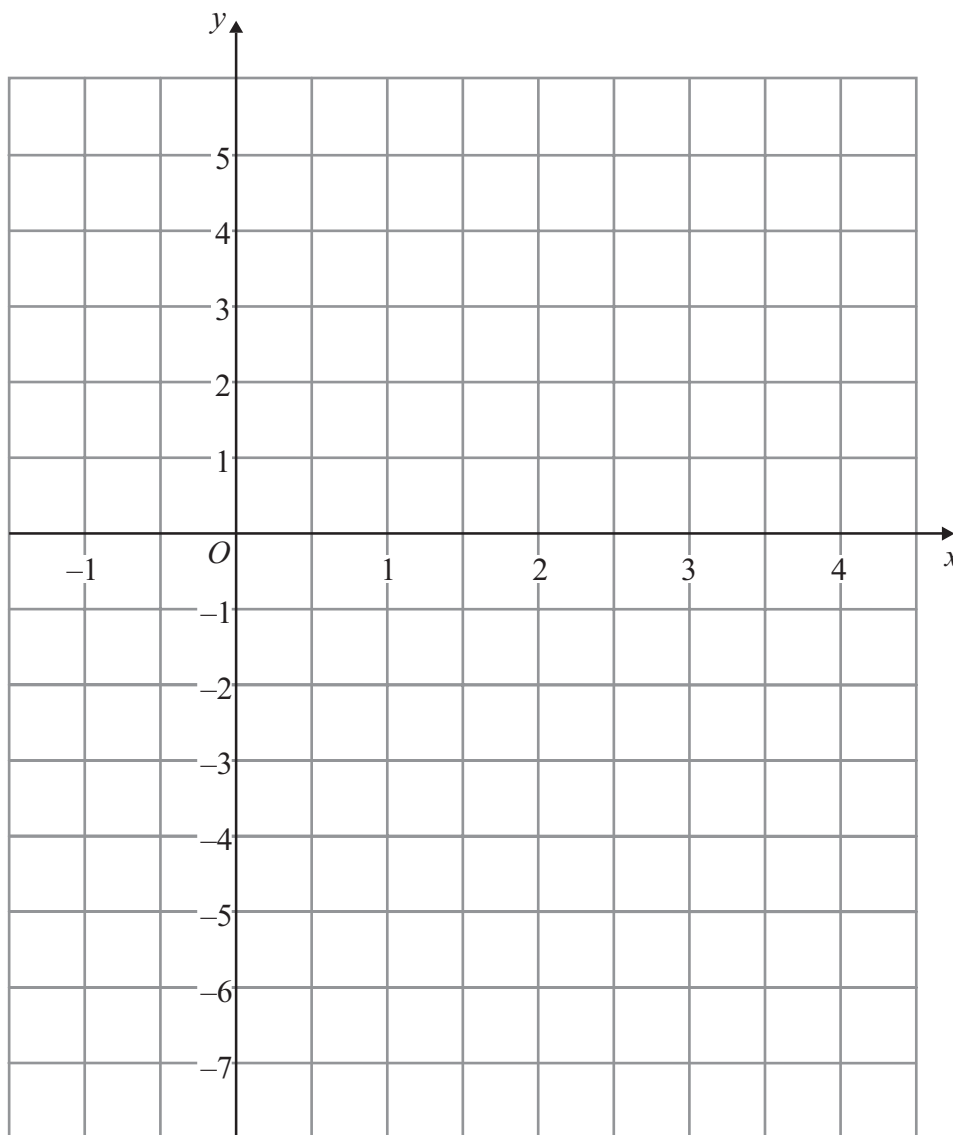
Work out how much Hasan was paid last week.

£ **Q2**

(Total 3 marks)

Turn over

3. On the grid, draw the graph of $y = 2x - 4$ for values of x from $x = -1$ to $x = 4$
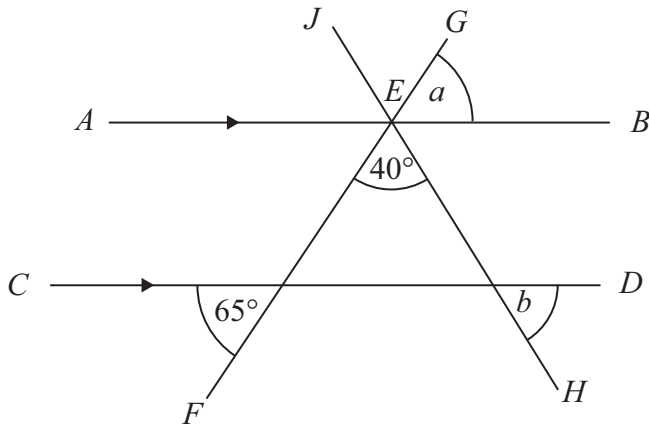
(Total 3 marks)

4.

Diagram **NOT** accurately drawn

FG and *HJ* are straight lines which cross at *E*.
The lines *AEB* and *CD* are parallel.

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

.... °

(ii) Give reasons for your answer.

....

....

(2)

(b) Work out the size of angle *b*.

.... °

(2)

(Total 4 marks)

Q4

5. (a) Expand and simplify $(x + 5)(x - 2)$

....

(2)

(b) Factorise $a^2 - 25b^2$

....

(1)

(Total 3 marks)

6. Work out $(2.7 \times 10^6) \times (2.85 \times 10^3)$

Give your answer in standard form.
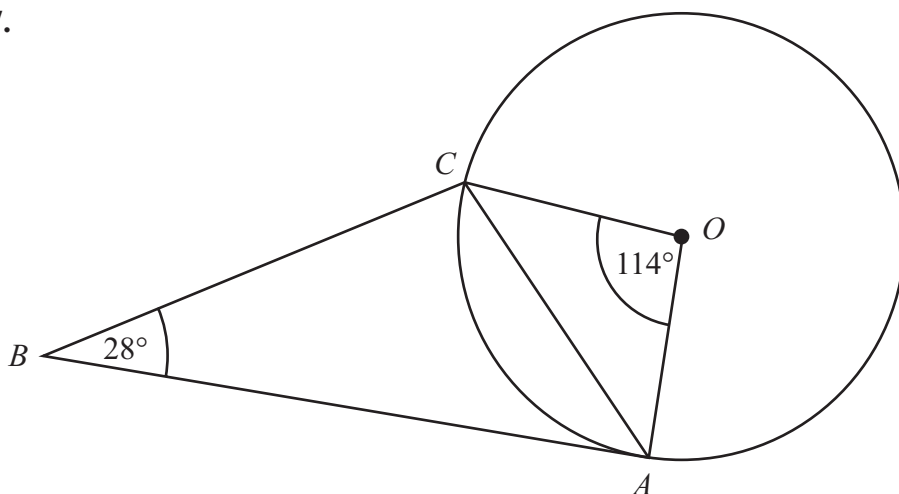
....

(Total 2 marks)

7.

Diagram **NOT**
accurately drawn

A and *C* are points on the circumference of a circle, centre *O*.
BA is a tangent to the circle.

Angle *ABC* = 28°
Angle *AOC* = 114°

Work out the size of angle *ACB*.

.... °

(Total 3 marks)

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P 3 8 9 4 6 A 0 7 0 8

8. Prove algebraically that the recurring decimal $0.\ddot{2}\ddot{8}$ can be written as the fraction $\dfrac{28}{99}$

(Total 2 marks)

9. Write $\dfrac{5}{x+1} - \dfrac{2}{x-1}$ as a single fraction in its simplest form.

....

(Total 3 marks)

TOTAL FOR PAPER: 25 MARKS

END