UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
International General Certificate of Secondary Education

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| CANDIDATE NAME | | | | | | | | | |
| CENTRE NUMBER | | | | | | CANDIDATE NUMBER | | | |

*3457337604*

**MATHEMATICS** **0580/13**

Paper 1 (Core) **October/November 2012**

**1 hour**

Candidates answer on the Question Paper.

Additional Materials: Electronic calculator
Mathematical tables (optional)
Geometrical instruments
Tracing paper (optional)

**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 pencil for any diagrams or graphs.
Do not use staples, paper clips, highlighters, glue or correction fluid.
DO **NOT** WRITE IN ANY BARCODES.

Answer **all** questions.
If working is needed for any question it must be shown below that question.
Electronic calculators should be used.
If the degree of accuracy is not specified in the question, and if the answer is not exact, give the answer to three significant figures. Give answers in degrees to one decimal place.
For $\pi$, use either your calculator value or 3.142.

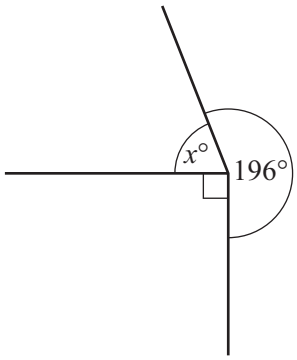
At the end of the examination, fasten all your work securely together.
The number of marks is given in brackets [ ] at the end of each question or part question.
The total of the marks for this paper is 56.

This document consists of **12** printed pages.


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For Examiner's Use

**1**




NOT TO SCALE

Find the value of $x$.

*Answer* $x =$ ..... [1]

---

**2** **(a)** Write down the order of rotational symmetry of this letter.

**H**

*Answer(a)* ..... [1]

**(b)** Draw the line of symmetry on this letter.

**A**

[1]

---

**3** Work out.

$4^3 - \sqrt{49}$

*Answer* ..... [2]

---

*For Examiner's Use*

**4** Simplify.

**(a)** $5t - 2t + 4t$

*Answer(a)* ..... [1]

**(b)** $r^5 \times r^8$

*Answer(b)* ..... [1]

---

**5** Samantha invests \$600 at a rate of 2% per year simple interest.

Calculate the interest Samantha earns in 8 years.

*Answer* \$ ..... [2]

---

**6** Show that $\left(\frac{1}{10}\right)^2 + \left(\frac{2}{5}\right)^2 = 0.17$.

Write down all the steps in your working.

*Answer*

[2]

---

**7** Pens cost $p$ cents and rulers cost $r$ cents.

Write down an expression, in terms of $p$ and $r$, for the cost of 5 pens and 11 rulers.

*Answer* ..... cents [2]

---

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**8** Jamie needs 300 g of flour to make 20 cakes.

How much flour does he need to make 12 cakes?

*Answer* ..... g [2]

---

**9** Expand the brackets.

$y(3 - y^3)$

*Answer* ..... [2]

---

**10** Maria pays \$84 rent.
The rent is increased by 5%.

Calculate Maria's new rent.

*Answer* \$ ..... [2]

---

**11** A carton contains 250 ml of juice, correct to the nearest millilitre.

Complete the statement about the amount of juice, $j$ ml, in the carton.

*Answer* ..... $\leqslant j <$ ..... [2]

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**12**
$$\frac{4.7^2 + 19.78}{\sqrt{98}}$$

**(a)** Rewrite this calculation with each number written correct to 1 significant figure.

*Answer(a)*

[1]

**(b)** Work out the answer to your calculation in **part (a)**.
Do not use a calculator and show all your working.

*Answer(b)* ..... [1]

---

**13** Factorise completely.

$4xy + 12yz$

*Answer* ..... [2]

---

**14**




**Using a straight edge and compasses only**, construct the locus of points which are equidistant from $R$ and from $T$. [2]

---

*For Examiner's Use*

**15** Find the value of $\dfrac{7.2}{11.8 - 10.95}$.

Give your answer correct to 4 significant figures.

*Answer* ..... [2]

---

**16** Calculate the interior angle of a regular pentagon.
You must show all your working.

*Answer* ..... [3]

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**17** **Without using your calculator**, work out

$$5\frac{3}{8} - 2\frac{1}{5}.$$

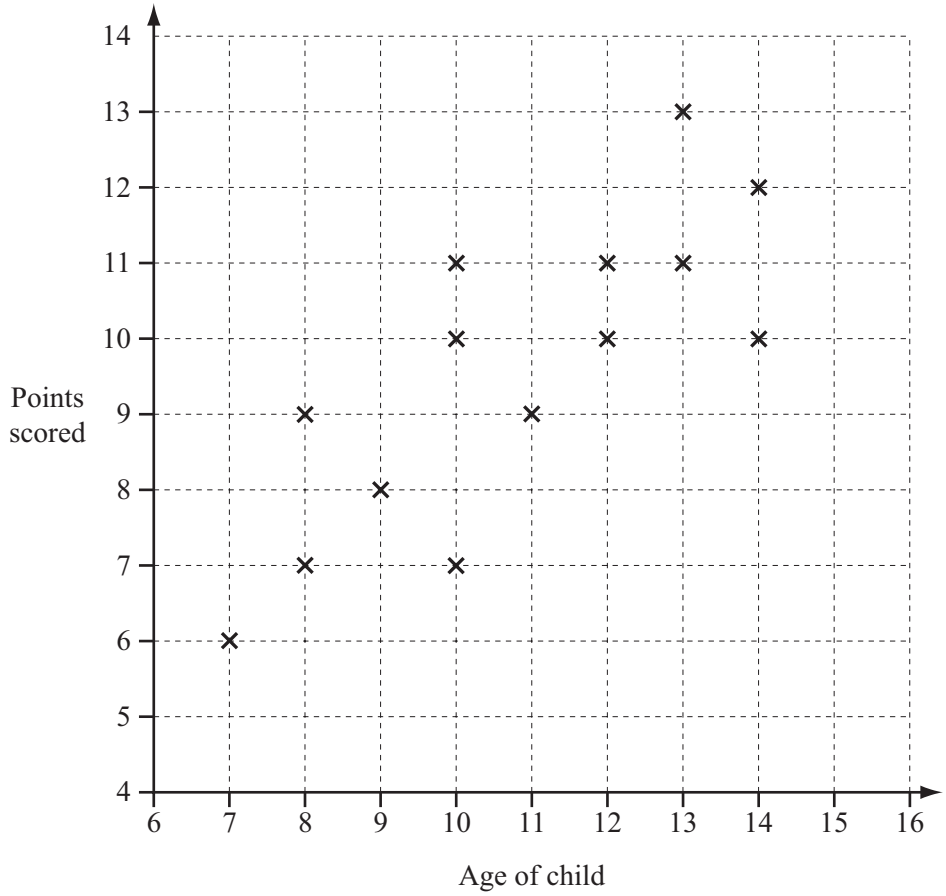
Give your answer as a fraction in its lowest terms.
You must show all your working.

*Answer* ..... [3]

---

**18** 14 children played a game.
The age of each child and the number of points they scored are plotted on the scatter diagram.

*For Examiner's Use*




**(a)** Write down the number of points the child aged 11 scored.

*Answer(a)* ..... [1]

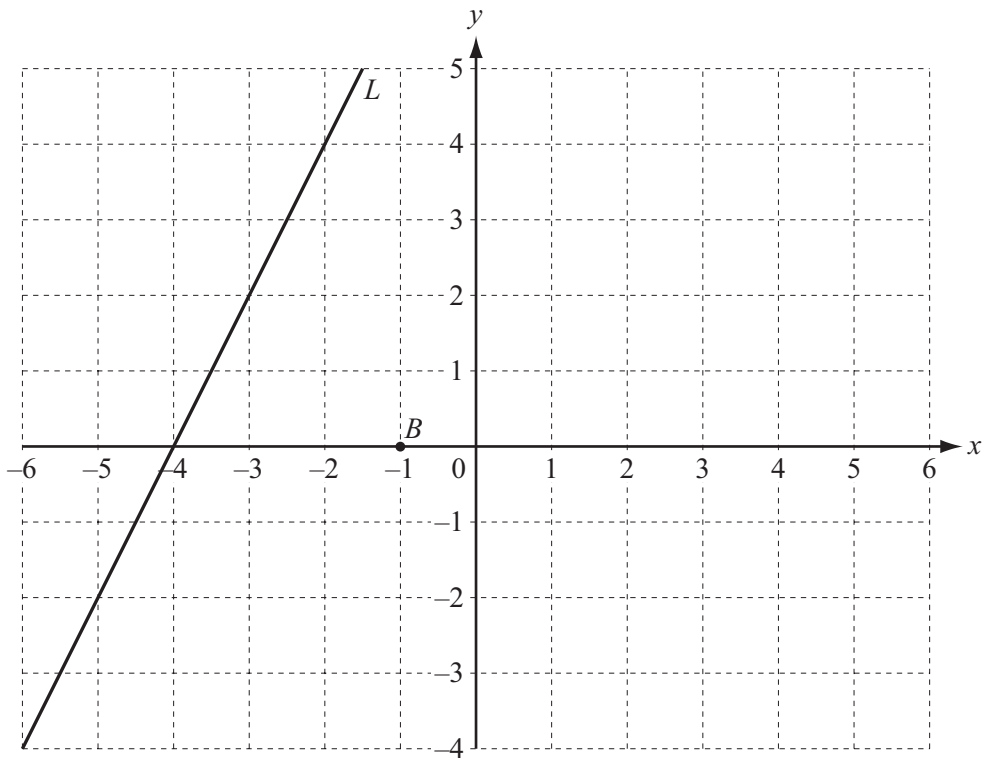
**(b)** Draw a line of best fit on the scatter diagram. [1]

**(c)** What type of correlation is shown?

*Answer(c)* ..... [1]

**19**

*For Examiner's Use*




**(a)** On the grid mark the point (5, 1). Label it *A*. [1]

**(b)** Write down the co-ordinates of the point *B*.

*Answer(b)* ( ..... , ..... ) [1]

**(c)** Find the gradient of the line *L*.

*Answer(c)* ..... [2]

*For Examiner's Use*

**20** **(a)** The probability that the school bus is late is 0.29.

Write down the probability that the school bus is **not** late.

*Answer(a)* ..... [1]

**(b)** A fridge contains 12 beef pies, 3 vegetable pies and 5 chicken pies.
One pie is taken at random from the fridge.

Find the probability that it is

**(i)** a vegetable pie,

*Answer(b)*(i) ..... [1]

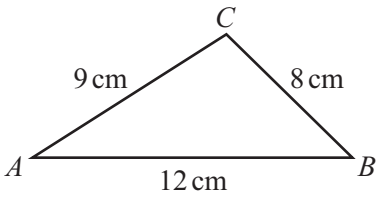
**(ii)** a beef pie or a vegetable pie,

*Answer(b)*(ii) ..... [1]

**(iii)** a lamb pie.

*Answer(b)*(iii) ..... [1]

**21**




NOT TO SCALE

*For Examiner's Use*

**(a) (i)** Construct an accurate drawing of triangle *ABC*.

[2]

**(ii)** On your drawing, mark accurately the midpoint of the side *AB*. Label it *M*. [1]

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**(b) (i)** Sketch the quadrilateral that has

- opposite sides which are equal in length and parallel

and

- opposite angles which are equal

and

- diagonals which bisect each other at 90°.

[1]

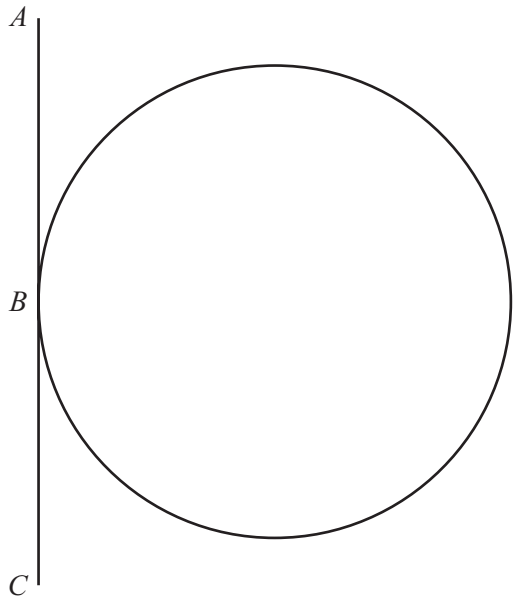
**(ii)** Write down the mathematical name of this quadrilateral.

*Answer(b)*(ii) ..... [1]

**Question 22 is printed on the next page.**

*For Examiner's Use*

**22** **(a)** In the diagram, the line $AC$ touches the circle at $B$.




**(i)** Measure the length of the line $AC$.

*Answer(a)*(i) $AC$ = ..... cm [1]

**(ii)** Write down the mathematical name for the line $AC$.

*Answer(a)*(ii) ..... [1]

**(iii)** Mark a point $D$ on the circumference of the circle. [1]

**(b)** The diameter of another circle is 3.6 cm.

Calculate the circumference of this circle.

*Answer(b)* ..... cm [2]

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