

CANDIDATE  
NAME

CENTER  
NUMBER

--	--	--	--	--

CANDIDATE  
NUMBER

--	--	--	--



**MATHEMATICS (US)**

**0444/13**

Paper 1 (Core)

**October/November 2015**

**1 hour**

Candidates answer on the Question Paper.

Additional Materials: Geometrical instruments

**READ THESE INSTRUCTIONS FIRST**

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

Write in dark blue or black pen.

You may use an HB pencil for any diagrams or graphs.

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

**DO NOT WRITE IN ANY BARCODES.**

Answer **all** questions.

**CALCULATORS MUST NOT BE USED IN THIS PAPER.**

All answers should be given in their simplest form.

If work is needed for any question it must be shown in the space provided.

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

The total of the points for this paper is 56.

This document consists of **11** printed pages and **1** blank page.

**Formula List**

Area,  $A$ , of triangle, base  $b$ , height  $h$ .

$$A = \frac{1}{2} bh$$

Area,  $A$ , of circle, radius  $r$ .

$$A = \pi r^2$$

Circumference,  $C$ , of circle, radius  $r$ .

$$C = 2\pi r$$

Lateral surface area,  $A$ , of cylinder of radius  $r$ , height  $h$ .

$$A = 2\pi rh$$

Surface area,  $A$ , of sphere of radius  $r$ .

$$A = 4\pi r^2$$

Volume,  $V$ , of prism, cross-sectional area  $A$ , length  $l$ .

$$V = Al$$

Volume,  $V$ , of cylinder of radius  $r$ , height  $h$ .

$$V = \pi r^2 h$$

Volume,  $V$ , of sphere of radius  $r$ .

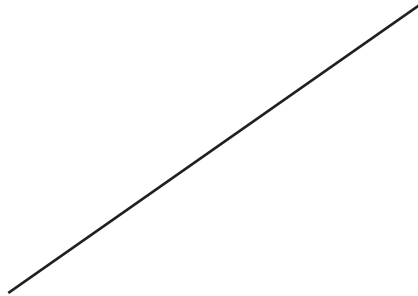
$$V = \frac{4}{3} \pi r^3$$

- 1 Write in figures the number six thousand and fifty four.

Answer ..... [1]

---

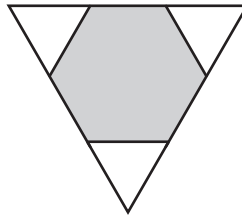
- 2 Measure the length of this line in centimeters.



Answer ..... cm [1]

---

- 3 Write down the order of rotational symmetry of this shape.



Answer ..... [1]

---

- 4 Write 168.9 correct to 2 significant digits.

Answer ..... [1]

---

- 5 Work out  $24 - 4 \times (3 + 2)$ .

Answer ..... [1]

---

- 6 The probability that it will rain on any day is  $\frac{1}{5}$ .

Work out the expected number of days it will rain in a month with 30 days.

Answer ..... [1]

---

- 7                      11              12              13              14              15              16

From the list of numbers, write down

- (a) the factors of 60,

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

- (b) the prime numbers.

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

---

- 8 These are the first four terms in a sequence.

21              17              13              9

- (a) Write down the next number in this sequence.

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

- (b) Write down the rule for continuing the sequence.

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

---

- 9 Simplify.

$$1 - 2u + u + 4$$

Answer ..... [2]

---

- 10 (a) At 9 am the temperature was  $-3^{\circ}\text{C}$ .  
At 1 pm the temperature had risen by  $5^{\circ}\text{C}$ .

Work out the temperature at 1 pm.

Answer(a) .....  $^{\circ}\text{C}$  [1]

- (b) Work out  $-7 - 2$ .

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

---

- 11 Solve for  $s$ .

$$t = \frac{s + d}{v}$$

Answer  $s =$  ..... [2]

---

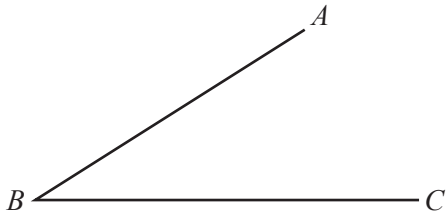
- 12 Write 72 as a product of its prime factors.

Answer ..... [2]

---

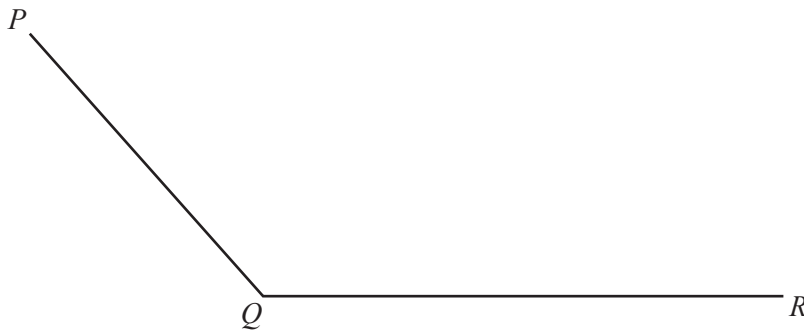
13 In this question, use a straight edge and compass only.

- (a) Construct a copy of angle  $ABC$ .  
The line  $BC$  has been drawn for you.



[2]

- (b) Bisect the obtuse angle  $PQR$ .



[2]

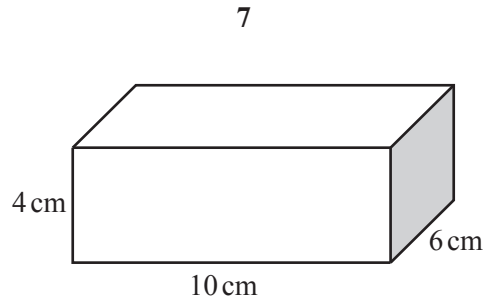
14 Here is a list of times, in seconds, that 8 people take to answer a question.

10    6    15    7    9    11    18    20

Work out the median time taken to answer the question.

Answer ..... s [2]

15



Work out the volume of this cuboid.  
Give the units of your answer.

Answer ..... [3]

16 Work out  $\frac{2}{3} + \frac{1}{6} - \frac{1}{4}$ , giving your answer as a fraction in its lowest terms.

Answer ..... [3]

17 (a) Expand.

$$3(x + 7)$$

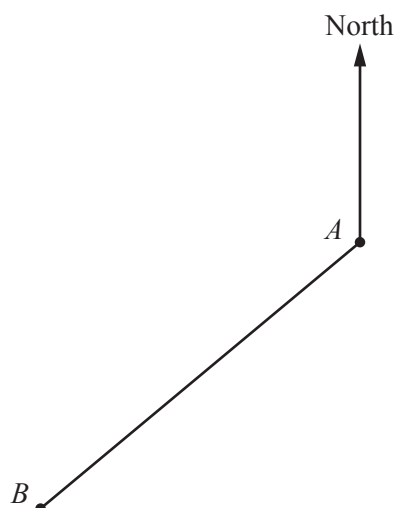
Answer(a) ..... [1]

(b) Factor completely.

$$2x - 4x^2$$

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

- 18 This scale drawing shows the positions of two towns,  $A$  and  $B$ , on a map.



- (a) Measure the bearing of town  $B$  from town  $A$ .

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

- (b) On the map, town  $C$  is 8 cm from town  $A$  on a bearing of  $155^\circ$ .

Mark the position of town  $C$  on the scale drawing. [2]

- 19 (a) Write  $1.7 \times 10^{-4}$  as an ordinary number.

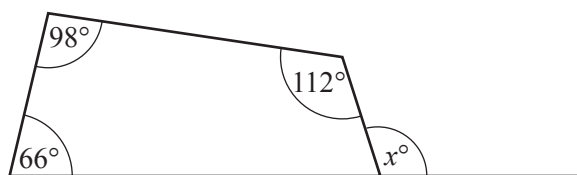
*Answer(a)* ..... [1]

- (b) Work out  $(3 \times 10^4) \times (2.5 \times 10^{-8})$ .  
Give your answer in scientific notation.

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



- 20 (a) The diagram shows a quadrilateral with one side extended.



NOT TO  
SCALE

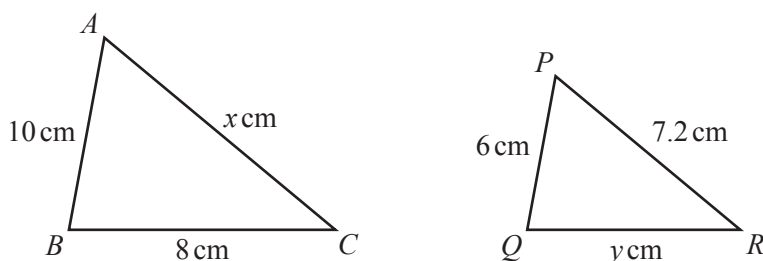
Find the value of  $x$ .

Answer(a)  $x = \dots\dots\dots$  [2]

- (b) Find the sum of the interior angles of a 12-sided polygon.

Answer(b)  $\dots\dots\dots$  [2]

21



NOT TO  
SCALE

The diagram shows two similar triangles  $ABC$  and  $PQR$ .

Find the value of

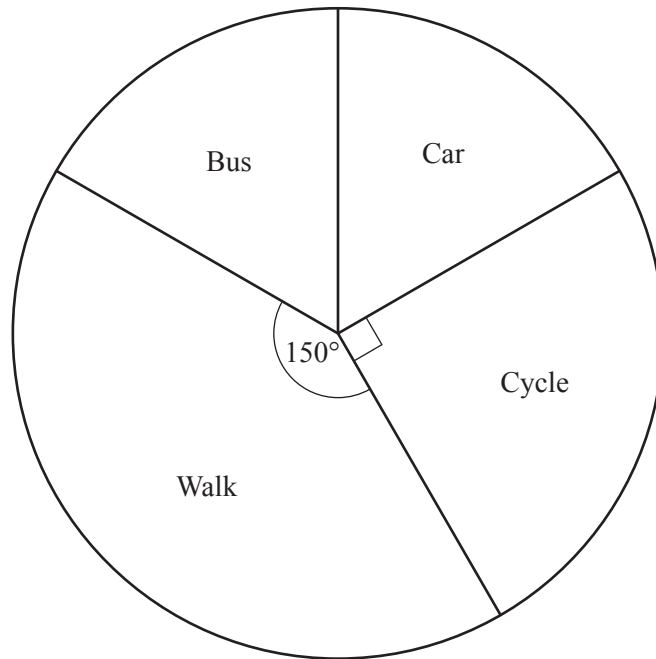
- (a)  $x$ ,

Answer(a)  $x = \dots\dots\dots$  [2]

- (b)  $y$ .

Answer(b)  $y = \dots\dots\dots$  [2]

22 The pie chart shows how 120 students travel to school.



(a) What fraction of the students cycle to school?

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

(b) Work out how many students walk to school.

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

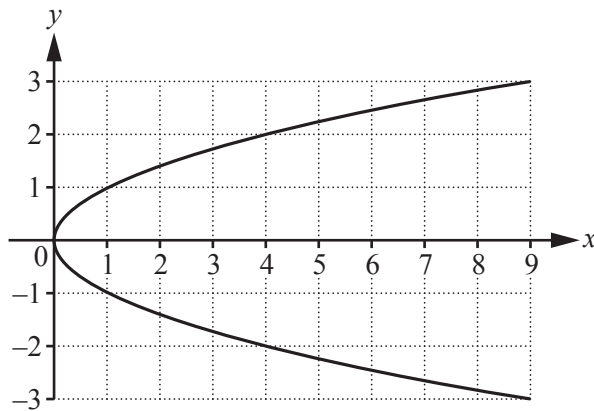
23 Solve the system of equations.  
You must show all your working.

$$\begin{aligned} 5x + 2y &= 8 \\ 2x - 3y &= 26 \end{aligned}$$

Answer  $x =$  .....

$y =$  ..... [4]

24



Is the graph in the diagram the graph of a function?  
Give a reason for your answer.

Answer ..... because .....

..... [2]

---

Permission to reproduce items where third-party owned material protected by copyright is included has been sought and cleared where possible. Every reasonable effort has been made by the publisher (UCLES) to trace copyright holders, but if any items requiring clearance have unwittingly been included, the publisher will be pleased to make amends at the earliest possible opportunity.

To avoid the issue of disclosure of answer-related information to candidates, all copyright acknowledgements are reproduced online in the Cambridge International Examinations Copyright Acknowledgements Booklet. This is produced for each series of examinations and is freely available to download at [www.cie.org.uk](http://www.cie.org.uk) after the live examination series.

Cambridge International Examinations is part of the Cambridge Assessment Group. Cambridge Assessment is the brand name of University of Cambridge Local Examinations Syndicate (UCLES), which is itself a department of the University of Cambridge.