UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
International General Certificate of Secondary Education

CANDIDATE NAME

CENTER NUMBER | | | | | |

CANDIDATE NUMBER | | | | |

0291803736

MATHEMATICS (US) **0444/11**

Paper 1 (Core) **October/November 2013**

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 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.
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 one hundred and twenty one thousand and forty two.

Answer ..... [1]

---

2 Write down the number of centimeters in $2\frac{1}{2}$ meters.

Answer ..... cm [1]

---

3 There were 41 524 people at a football match.

(a) Write 41 524 correct to the nearest thousand.

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

(b) One quarter of the 41 524 people left before the end of the game.

Find the number of people who left before the end of the game.

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

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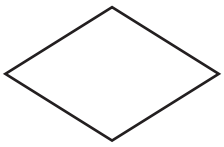
4 **(a)** Write down the order of rotational symmetry of this shape.

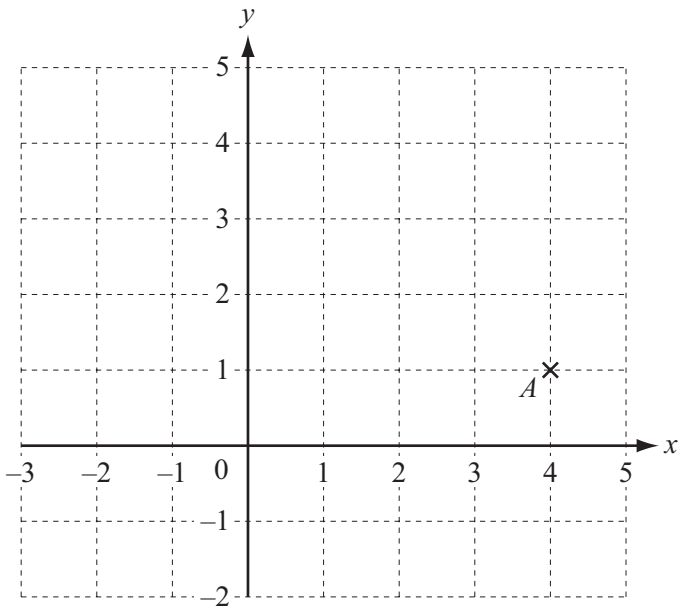


Answer(a) ..... [1]

(b) Draw the lines of symmetry on this shape.

[1]

5



(a) Write down the co-ordinates of point A.

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

(b) On the grid, plot the point (–1, 3). [1]

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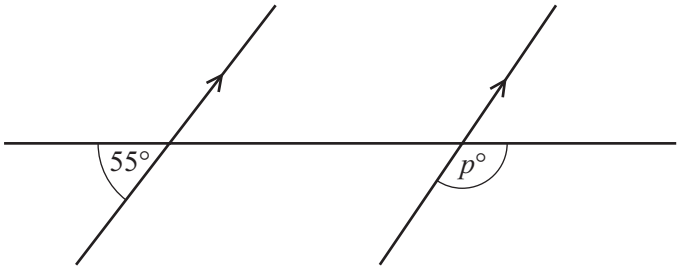
6 Simplify the following expression.

$$5a - 3b - 2a - b$$

Answer ..... [2]

7

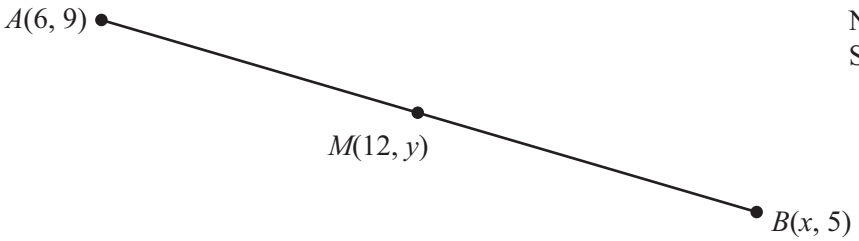


NOT TO SCALE

Find the value of p.

Answer p = ... [2]

8



The diagram shows three points $A(6, 9)$, $B(x, 5)$ and $M(12, y)$.
M is the midpoint of the line AB.

Find the values of x and y.

Answer $x =$ .....

$y =$ ..... [2]

---

9 Work out 15% of 44 kg.

Answer ..... kg [2]

---

10 Find the value of

(a) $\left(\frac{4}{3}\right)^{-1}$,

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

(b) 6^0.

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

---

11 Solve the equation.

$$5 - 2x = 3x - 19$$

Answer $x =$ ..... [2]

---

12 Yim knows one angle of an isosceles triangle is 48°.
He says one of the other angles **must** be 66°.

Explain why Yim is wrong.

Answer .....

..... [2]

13

8 15 7 8 7 15 4 10 4 3 13 2 9 4 5

(a) Write down the mode.

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

(b) Find the range.

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

(c) Work out the median.

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

14

S	P	A	C	E	S

One of the 6 letters is taken at random.

(a) Write down the probability that the letter is S.

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

(b) The letter is replaced and again a letter is taken at random.
This is repeated 600 times.

How many times would you expect the letter to be S?

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

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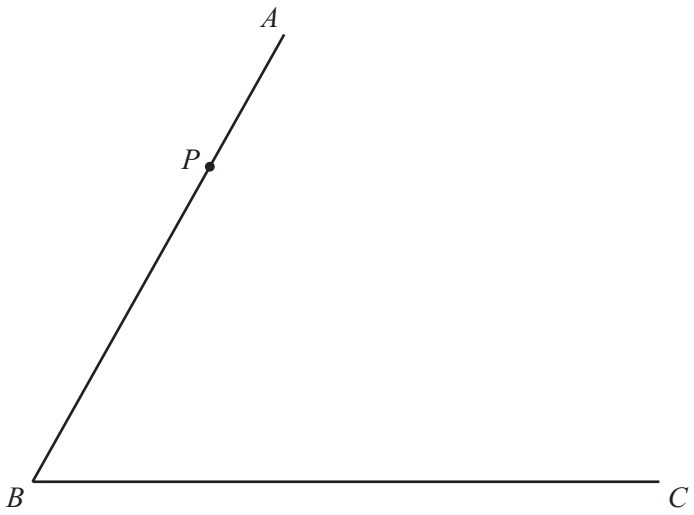
15 Bruce invested \$800 at a rate of 3% per year simple interest.

Calculate the **total** amount he has after 6 years.

Answer \$ ..... [3]

16



(a) On the diagram above, draw a line perpendicular to the line AB, through the point P. [1]

(b) **Using a straight edge and compass only**, construct the bisector of angle ABC. [2]

---

17 **(a)** Write down the slope of the line $y = 7 - x$.

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

(b) Find an equation of the line parallel to $y = 7 - x$ passing through the point (0, 11).

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

---

18 Work out, giving each answer as a fraction in lowest terms.

(a) $\frac{3}{4} - \frac{1}{12}$

Answer(a) ..... [2]

(b) $2\frac{1}{2} \times \frac{4}{25}$

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

---

19 **(a)** Factor completely.

$6ab - 24bc$

Answer(a) ..... [2]

(b) Solve for m.

$$j = \frac{m}{n} - k$$

Answer(b) $m =$ ..... [2]

---

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

27 23 19 15

(i) Write down the next term in the sequence.

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

(ii) Explain how you worked out your answer to **part (a)(i)**.

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

(b) The nth term of a different sequence is $4n - 2$.

Write down the first three terms of this sequence.

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

(c) Here are the first four terms of another sequence.

-1 2 5 8

Write down the nth term of this sequence.

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

21 Frankie is a runner and trains each day on the track.
Frankie warms up for 10 minutes and then runs x laps of the track.
Each lap takes 8 minutes.
The function $f(x) = ax + b$ gives the total time in minutes for a day's training.

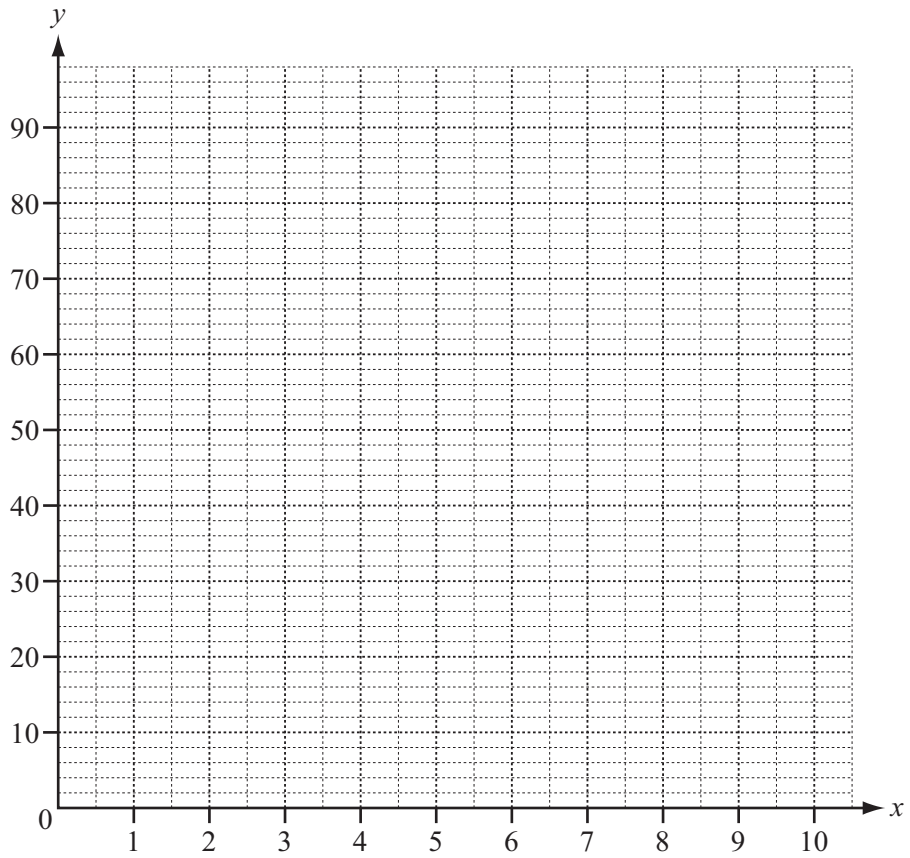
(a) Write down the values of a and b.

Answer(a) $a =$ .....

$b =$ ..... [2]

(b) Frankie runs a maximum of 9 laps.

On the grid, draw the graph of $y = f(x)$.



[2]

(c) Use your graph to find x when $f(x) = 72$.

Answer(c) $x =$ ..... [1]

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