Cambridge IGCSE

CANDIDATE NAME

CENTER NUMBER

CANDIDATE NUMBER

MATHEMATICS (US)

0444/11

Paper 1 (Core)

May/June 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. $\qquad$ $A = \frac{1}{2}bh$

Area, A, of circle, radius r. $\qquad$ $A = \pi r^2$

Circumference, C, of circle, radius r. $\qquad$ $C = 2\pi r$

Lateral surface area, A, of cylinder of radius r, height h. $\qquad$ $A = 2\pi rh$

Surface area, A, of sphere of radius r. $\qquad$ $A = 4\pi r^2$

Volume, V, of prism, cross-sectional area A, length l. $\qquad$ $V = Al$

Volume, V, of cylinder of radius r, height h. $\qquad$ $V = \pi r^2 h$

Volume, V, of sphere of radius r. $\qquad$ $V = \frac{4}{3}\pi r^3$

1 There are 31 days in January.
January 21st 2015 was a Wednesday.

What day of the week was February 8th 2015?

Answer .... [1]

2 The temperature in Berlin is –7 °C and the temperature in Istanbul is –3 °C.

(a) Write down how many degrees colder it is in Berlin than it is in Istanbul.

Answer (a) .... °C [1]

(b) Sydney is 23 degrees warmer than Berlin.

Write down the temperature in Sydney.

Answer (b) .... °C [1]

3 (a) A mass of 300 kg is increased by 8%.

Work out the increase in mass.

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

(b) Nelson scores 28 out of 40 in a history test.

Work out his score as a percentage.

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

4   The total mass of 50 spoons is 2000 g.

Work out the mass of 9 spoons.

Answer .... g [2]

5   Prince Charming invests $3000 for 5 years at a rate of 4% per year simple interest.

Work out the **total interest** he will receive.

Answer $... [2]

6   **Using a compass and ruler only**, construct a triangle with sides 5 cm, 6 cm and 7 cm.

The 5 cm side has been drawn for you.

[2]

7

equilateral triangle	**square**
regular pentagon	**parallelogram**
regular hexagon	**circle**

From the list, write down

(a) the shape which has more than 6 lines of symmetry,

Answer (a) .... [1]

(b) the shape which has both acute and obtuse interior angles.

Answer (b) .... [1]

8 Solve for *x*.

$$y = \frac{x - b}{2}$$

Answer x = ... [2]

9 The scatter diagram shows the number of sun hats and ice creams sold by a shop each day for two weeks.

Number of sun hats sold
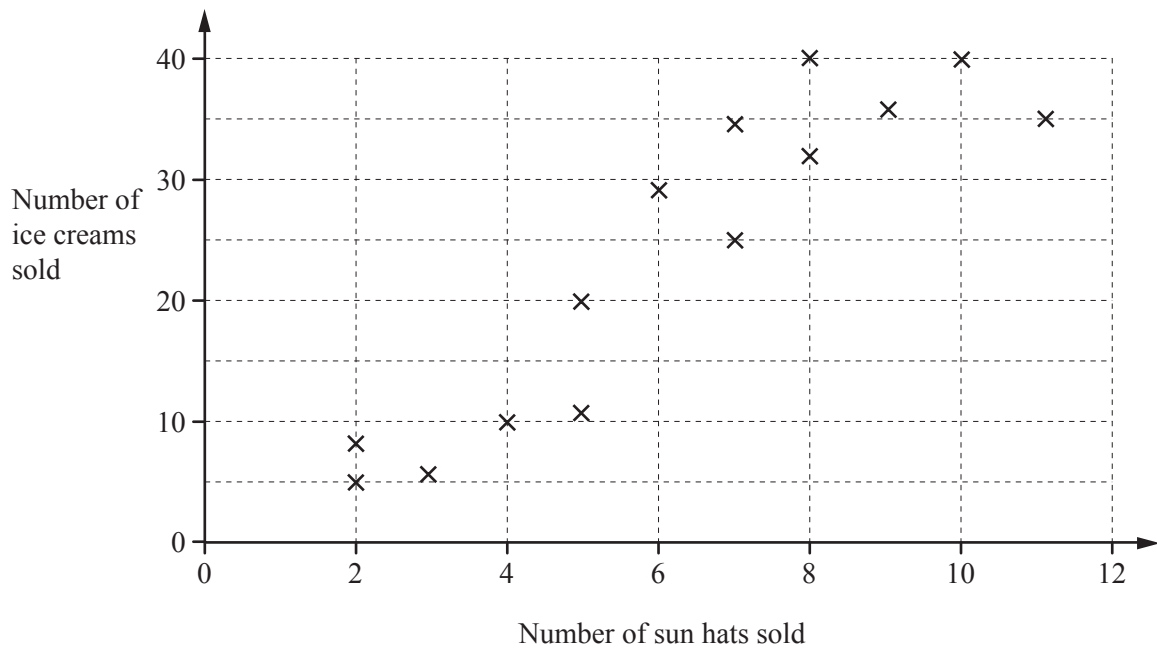
(a) Write down the type of correlation shown by the diagram.

Answer (a) .... [1]

(b) Describe the relationship between the number of sun hats sold and the number of ice creams sold.

Answer (b) .... [1]

10 Simplify.
$$6uw^{-3} \times 4uw^6$$

Answer .... [2]

11 The cost, *C* dollars per person, of renting a ski chalet for *n* people is given by the function

$$C(n) = \frac{1240}{n}.$$

The chalet accommodates at most 8 people.

Write down the domain of this function.

Answer .... [2]

12 (a) Write down the co-ordinates of the point where the line $y = 3x + 5$ crosses the *y*-axis.

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

(b) Write down the equation of a line that is parallel to the line $y = 3x + 5$.

Answer (b) .... [1]

13 **(a)** Factor.
$$3w^2 - 2w$$

Answer (a) .... [1]

(b) Expand and simplify.
$$x(2x + 3) + 5(x - 7)$$

Answer (b) .... [2]

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14 Six donkeys are **each** given two 5 ml spoons of medicine three times each day.

Work out how much medicine is used in 10 days.
Give your answer in liters.

Answer .... liters [3]

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15 A cuboid has volume 330 cm^3.

(a) The cuboid has length 12 cm and width 5 cm.

Work out the height of the cuboid.

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

(b) 1 cm^3 of the cuboid has a mass of 4 g.

Work out the mass of the cuboid.

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

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16 Work out $\frac{3}{7} \div 1\frac{4}{5}$.

Give your answer as a fraction in its lowest terms.

Answer .... [3]

17 (a) Write 82 600 in scientific notation.

Answer (a) .... [1]

(b) Work out $8 \times 10^8 - 5 \times 10^7$.

Give your answer in scientific notation.

Answer (b) .... [2]

18 Solve the equation.
$$5(3y - 2) = 35$$

Answer y = ... [3]

19 Jon makes a snowball of diameter 12 cm.

Work out the surface area of Jon's snowball, giving your answer in terms of π.
State the units of your answer.

Answer .... [3]

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20 (a)   2,   3,   6,   11,   18,   . . .

    (i) Write down the next two terms in this sequence.

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

    (ii) Describe, in words, the rule for continuing this sequence.

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

(b) The *n*th term of a different sequence is $4n - 3$.

Work out the first three terms in this sequence.

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

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21 (a) Write 30 as a product of its prime factors.

Answer (a) .... [2]

(b) Find the least common multiple (LCM) of 30 and 45.

Answer (b) .... [2]

22
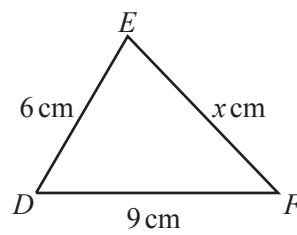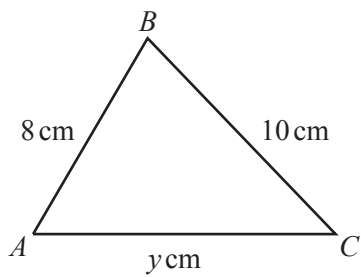
Triangle *ABC* is similar to triangle *DEF*.

Find the value of

(a) *x*,

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

(b) *y*.

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

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