



Cambridge Assessment International Education
Cambridge International General Certificate of Secondary Education

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MATHEMATICS (US)

0444/11

Paper 1 (Core)

May/June 2019

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 **12** printed pages.

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 .

$$A = 2\pi r h$$

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 $\frac{3}{4}$ as a decimal.

..... [1]

2 Work out \$4 as a percentage of \$16.

.....% [1]

3 Factor $5y - 6py$.

..... [1]

4 A bag contains green balls and red balls only.
A ball is taken at random from the bag.
The probability of taking a green ball is 0.3 .

Write down the probability of taking

(a) a red ball,

..... [1]

(b) a blue ball.

..... [1]

- 5 (a) On Monday the temperature at midday is 4°C and the temperature at midnight is -3°C .

Work out the difference between these two temperatures.

..... $^{\circ}\text{C}$ [1]

- (b) On Wednesday the temperature at midday is -1°C .
By 7 pm the temperature has fallen by 4°C .

Work out the temperature at 7 pm.

..... $^{\circ}\text{C}$ [1]

- 6 The volume of a cuboid is 180 cm^3 .
The base of the cuboid has an area of 30 cm^2 .

Work out the height of this cuboid.

..... cm [2]

- 7 Write the following numbers in scientific notation.

- (a) 640 000

..... [1]

- (b) 0.0006

..... [1]

8 Work out.

(a) $14 - 2 \times 3$

..... [1]

(b) $\sqrt[3]{-8}$

..... [1]

(c) $12^2 - 11^2$

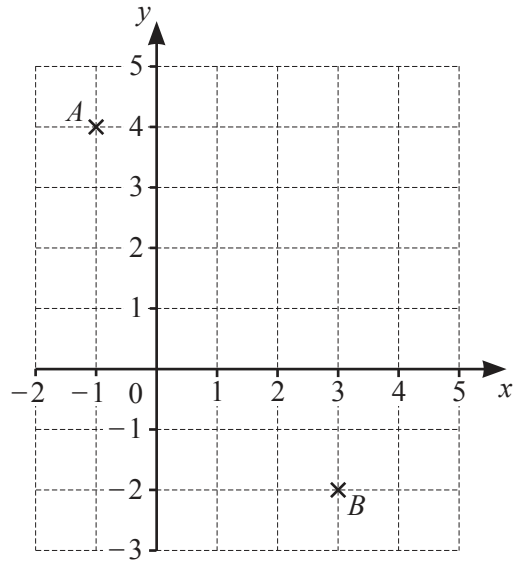
..... [2]

9 Asif and Ben share \$2100 in the ratio Asif : Ben = 3 : 7.

Work out how much Asif receives.

\$ [2]

10



A is the point $(-1, 4)$ and B is the point $(3, -2)$.

(a) Work out \vec{AB} .

$$\vec{AB} = \left(\begin{array}{c} \\ \end{array} \right) \quad [1]$$

(b) Find the co-ordinates of the midpoint of the line AB .

(..... ,) [1]

11 Simplify.

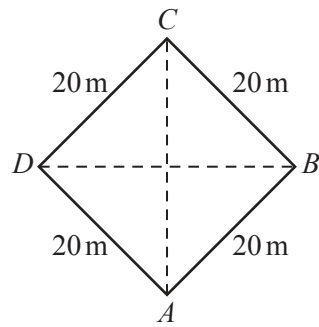
(a) $t^{21} \div t^7$

..... [1]

(b) $(u^5)^5$

..... [1]

- 12 A groundskeeper is planning the shape of a new sports area in a park.



NOT TO
SCALE

He draws a quadrilateral $ABCD$ to represent an area to be covered with turf.
The sides of $ABCD$ are each 20 meters in length.
 $AC = BD$

- (a) Write down the mathematical name of the quadrilateral $ABCD$.

..... [1]

- (b) Turf is sold in rolls that each cover an area of 25 square meters.

Find the minimum number of rolls of turf that the groundskeeper needs to order to cover the whole of the quadrilateral $ABCD$.

..... [2]

13

$$p = 1.9(0.47 + \sqrt{3.8})$$

- (a) By writing each number correct to 1 significant figure, work out an estimate for p .
You must show all your working.

..... [2]

- (b) Is your answer to **part (a)** an overestimate or an underestimate for the value of p ?
Explain how you decide.

.....
..... [1]

14

27 28 29 30 31 32 33

From the list of numbers, write down

- (a) a multiple of 7,

..... [1]

- (b) a cube number,

..... [1]

- (c) a prime number.

..... [1]

15 Work out $\frac{5}{6} + \frac{2}{3}$.

Give your answer as a mixed number in its simplest form.

..... [3]

16 These are the first four terms of a sequence.

5 8 11 14

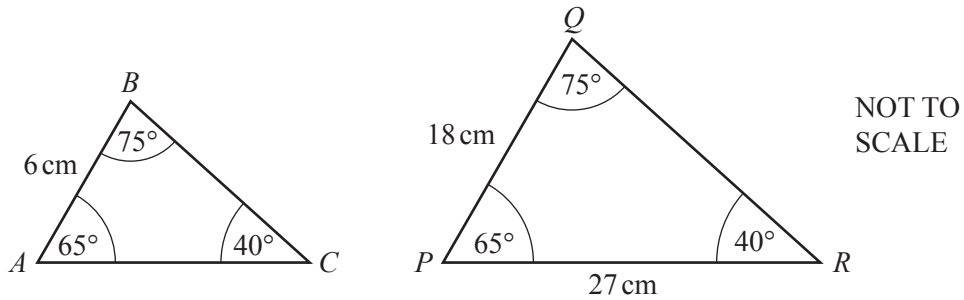
(a) Write down the next term.

..... [1]

(b) Find an expression, in terms of n , for the n th term.

..... [2]

17



(a) Explain why triangle ABC and triangle PQR are similar.

..... [1]

(b) Find AC .

$AC = \dots\dots\dots$ cm [2]

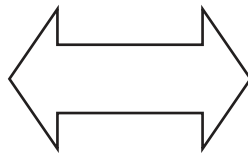
18 A car travels at a constant speed of 20 m/s.

Work out the time it takes for the car to travel 18 km.
Give your answer in minutes.

..... minutes [3]

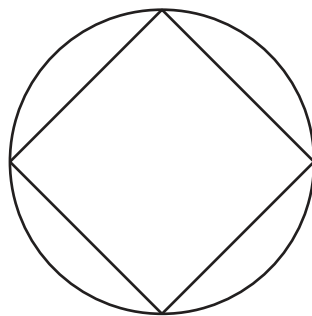
19 (a) On each shape, draw all the lines of symmetry.

(i)



[1]

(ii)



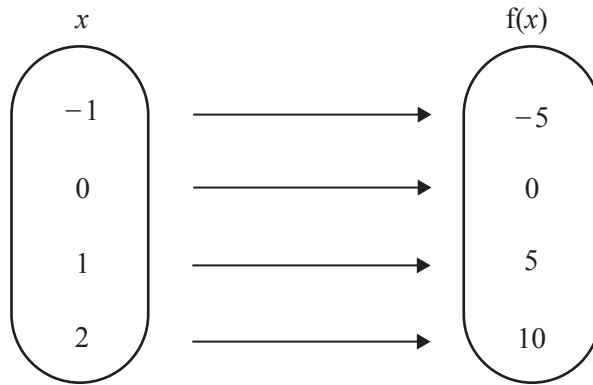
[2]

(b) Write down the name of a quadrilateral that has

- rotational symmetry of order 2
- and
- exactly two lines of symmetry.

..... [1]

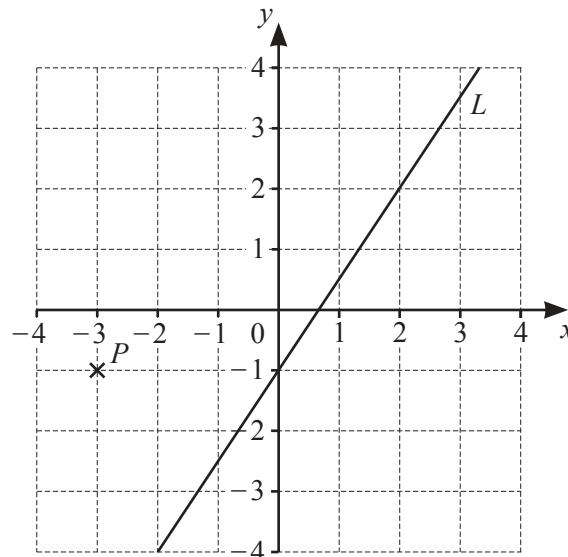
20 The mapping diagram shows the domain and range of the function $f(x) = kx$.



Find the value of k .

$k = \dots\dots\dots$ [1]

21 The diagram shows a point P and a line L .



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

(.....,) [1]

(b) Find the slope of line L .

..... [2]

(c) Write down the equation of line L in the form $y = mx + b$.

$y = \dots\dots\dots$ [2]

Question 22 is printed on the next page.

22 (a) Change 3670 centimeters to meters.

..... m [1]

(b) The scale drawing shows the positions of town *S* and town *T*.
The scale is 1 centimeter represents 10 kilometers.



Scale: 1 cm to 10 km

(i) Find the actual distance between these two towns.

..... km [2]

(ii) Measure the bearing of town *T* from town *S*.

..... [1]

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