

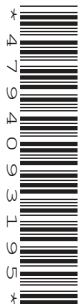
CANDIDATE
NAME

CENTER
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MATHEMATICS (US)

0444/13

Paper 1 (Core)

October/November 2018

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 .

$$A = 2\pi r h$$

Surface area, A , of sphere of radius r .

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

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

$$V = Al$$

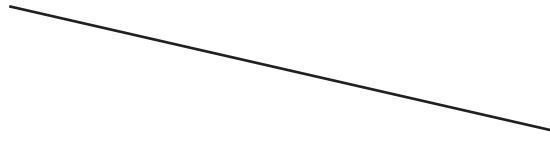
Volume, V , of cylinder of radius r , height h .

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

Volume, V , of sphere of radius r .

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

- 1 Measure the length of this line in centimeters.



..... cm [1]

- 2 Work out $\frac{5}{8}$ of 24 kg.

..... kg [1]

- 3 Work out \$3 as a percentage of \$60.

..... % [1]

- 4 Work out. $\frac{5.4 - 0.5}{7}$

..... [1]

- 5 Factor. $y - 2y^2$

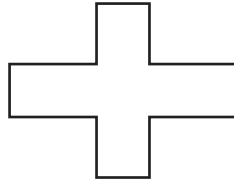
..... [1]

- 6 Jon wants to use a three-dimensional shape to model an apple.

Write down the mathematical name of the three-dimensional shape Jon should use.

..... [1]

7



On the shape, draw all the lines of symmetry.

[2]

8 Share \$72 in the ratio 5 : 4.

\$, \$ [2]

9 (a) At noon on Wednesday, the temperature was 5°C .
At midnight, the temperature was 8°C lower.

Work out the temperature at midnight.

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

(b) At noon on Saturday, the temperature was 15°C .
At midnight, the temperature was -3°C .

Work out the difference in these temperatures.

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

10 Simplify.

$$2p - q - 3q - 5p$$

..... [2]

11 Write these numbers correct to 2 significant figures.

(a) 0.076499

..... [1]

(b) 10 100

..... [1]

12 Work out $\frac{1}{4} \div \frac{2}{3}$.

Give your answer as a fraction.

..... [2]

13 (a) Write the number five million, two hundred, seven in figures.

..... [1]

(b) Write 0.008 13 in scientific notation.

..... [1]

14 Write down all the factors of 30.

..... [2]

15 Ethan has a box of toys.
He takes a toy at random.

| | | | | |
|-------------|-----|-------|-----|-------|
| Toy | Car | Train | Bus | Other |
| Probability | 0.2 | 0.45 | | 0.08 |

Complete the table. [2]

16 For the line $y = 4x - 6$, write down

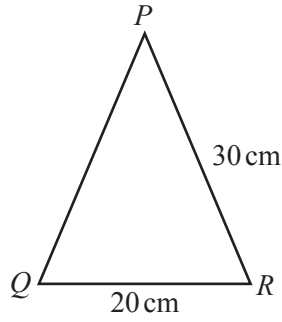
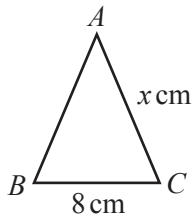
(a) the slope,

..... [1]

(b) the y -intercept.

..... [1]

17



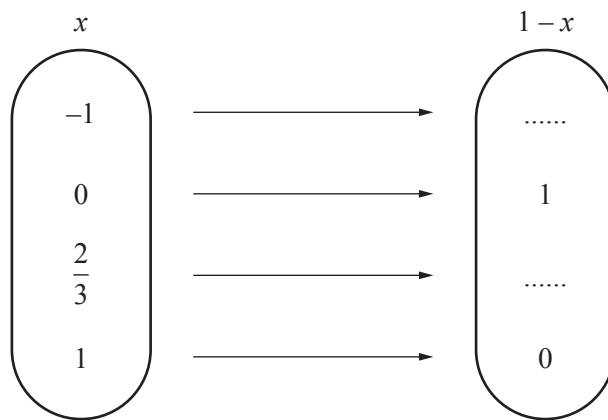
NOT TO SCALE

Triangle ABC is similar to triangle PQR .

Find the value of x .

$x = \dots\dots\dots$ [2]

18 Complete the mapping diagram for the function $f(x) = 1 - x$.



[2]

19

- 16 7 23 18 73 20 95 17 89 54

For this list of numbers, find

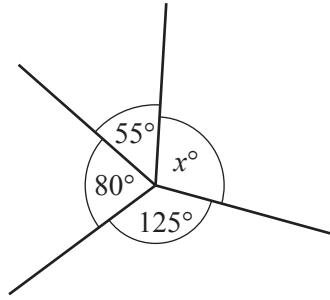
(a) the median,

$\dots\dots\dots$ [2]

(b) the range.

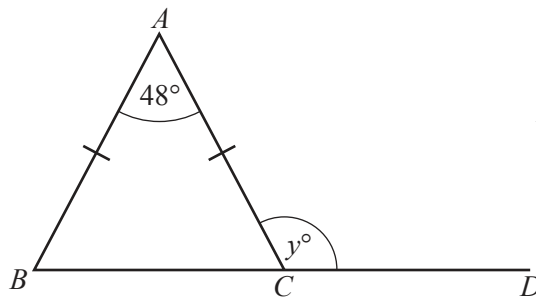
$\dots\dots\dots$ [1]

20 (a)

NOT TO
SCALEFind the value of x .

$$x = \dots\dots\dots [1]$$

(b)

NOT TO
SCALE ABC is an isosceles triangle and BCD is a straight line.Find the value of y .

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

21 Work out the size of an interior angle of a regular 20-sided polygon.

$$\dots\dots\dots [3]$$

22 Solve.

(a) $3w - 7 = 32$

$w = \dots\dots\dots [2]$

(b) $4(5x + 7) = 42$

$x = \dots\dots\dots [3]$

23 A car travels at 120 km/h for 2 minutes.

Work out the distance the car travels.
Give your answer in meters.

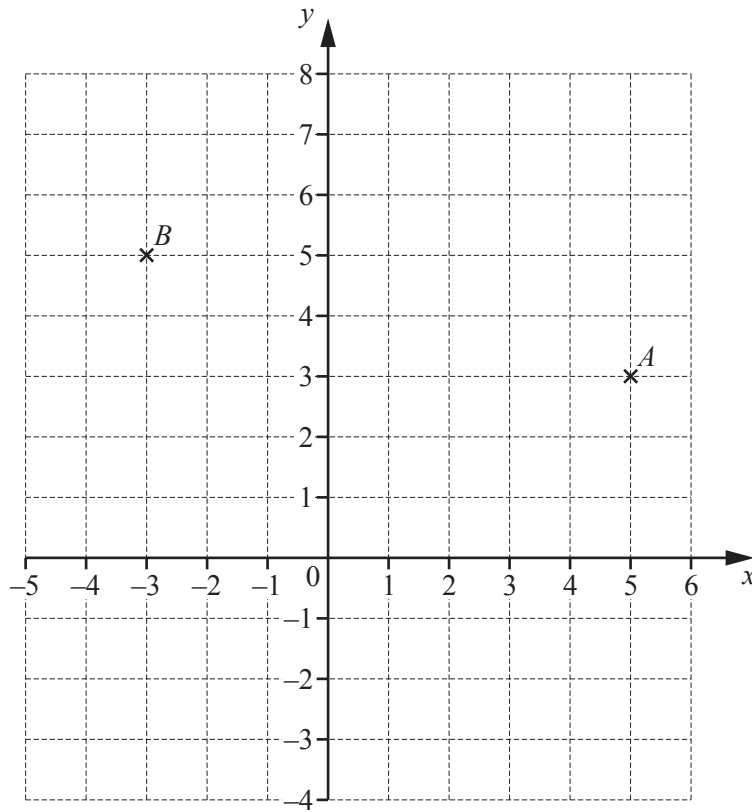
$\dots\dots\dots \text{ m } [3]$

24 Jo invests \$5000 at a rate of 1% per year compound interest.

Work out the value of her investment at the end of 2 years.

\$ [3]

25



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

(..... ,) [1]

(b) Plot the point *C* at (4, -3).

[1]

(c) Find the vector \vec{AB} .

$$\vec{AB} = \begin{pmatrix} \\ \end{pmatrix} \quad [1]$$

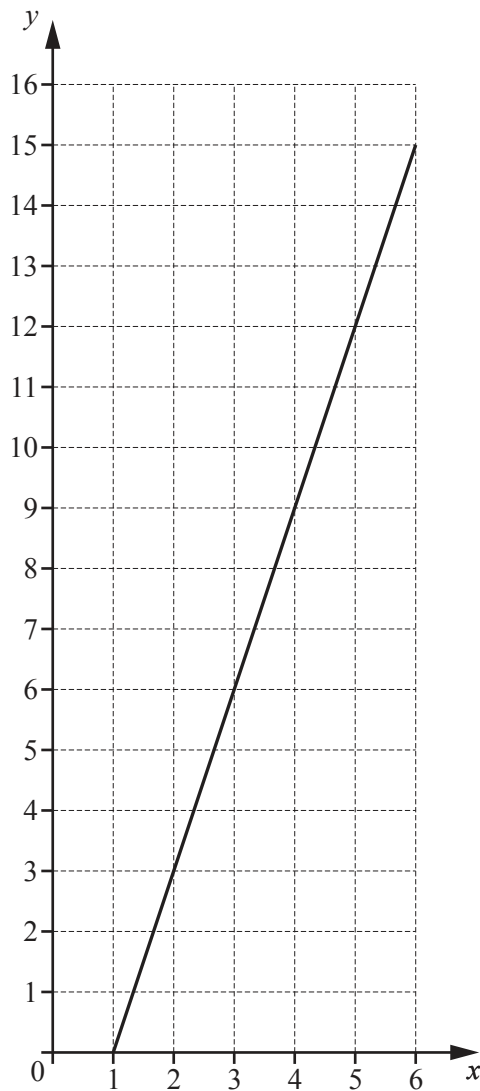
26 (a) $g(x) = 3(x - 1)$ for $1 \leq x \leq 6$.

(i) Dom thinks that it is possible to find the value of $g(7)$.

Is Dom correct?
 Explain how you decide.

..... because
 [1]

(ii) The diagram shows the graph of $y = g(x)$.



Write down the range of $g(x)$.

..... [1]

- (b) Workers are given extra vacation days according to how many complete years they have worked at a factory.

The function

$$h(x) = 3(x - 1)$$

is used to work out the number of extra vacation days given to a worker who has worked for x complete years.

After 5 years, a worker does not receive any further extra vacation days.

Write down a suitable domain for $h(x)$.

..... [1]

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