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MATHEMATICS

0580/01

Paper 1 (Core)

For examination from 2020

SPECIMEN PAPER

1 hour

You must answer on the question paper.

You will need: Geometrical instruments

INSTRUCTIONS

- Answer **all** questions.
- Use a black or dark blue pen. You may use an HB pencil for any diagrams or graphs.
- Write your name, centre number and candidate number in the boxes at the top of the page.
- Write your answer to each question in the space provided.
- Do **not** use an erasable pen or correction fluid.
- Do **not** write on any bar codes.
- You should use a calculator where appropriate.
- You must show all necessary working clearly.
- Give non-exact numerical answers correct to 3 significant figures, or 1 decimal place for angles in degrees, unless a different level of accuracy is specified in the question.
- For π , use either your calculator value or 3.142.

INFORMATION

- The total mark for this paper is 56.
- The number of marks for each question or part question is shown in brackets [].

This document has **12** pages. Blank pages are indicated.

1 Write seven eert b ad d ee n eeri n fig es.

. []

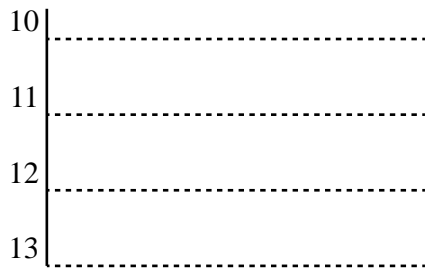
2 Fid h m b r b mintu es frm 7 8 3 m .

. min []

3 Th m ber b cars p rk d m car p rka t 9am is recd d d 01 y .

1 0 2 1 6 3 0 2 0 1 8 1 4

Com p ete the stem-ad -leaf d ag am.



Key: 12|3 represents 123 cars

[2]

4 (a) Write b d rect to h a arest 0

. []

(b) Write b d rect to s ig fican fig es.

. []

5 A cardboard easel is 6 cm by 2 cm.

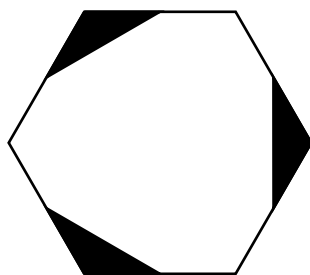
On this 1 cm² grid draw a net for the cardboard



[3]

4

6



(a) Write down the order of rotation of the shape.

. . . []

(b) Draw all the lines of symmetry of the shape.

[]

7 (a) Write down a fraction which is equivalent to $\frac{3}{5}$.

. . . []

(b) Write down the reciprocal of $\frac{7}{9}$.

. . . []

8 A cube has a volume of 1000 cm^3 .

Calculate the surface area of the cube.

. . . cm^2 []

9 Dan is walking on cycles to school.

The probability that he cycles to school is $\frac{1}{5}$.

(a) Write down the probability that Dan walks to school.

. . . []

(b) There are 2000 pupils in school every day.

Work out the expected number of pupils who cycle to school every day.

. . . []

10 Using a ruler and pair of compasses only, construct a triangle with sides 5 cm, 8 cm and 10 cm. Leave in your construction lines.

[2]

11 Here is a list of numbers.

Put a ring round the number with the largest value.

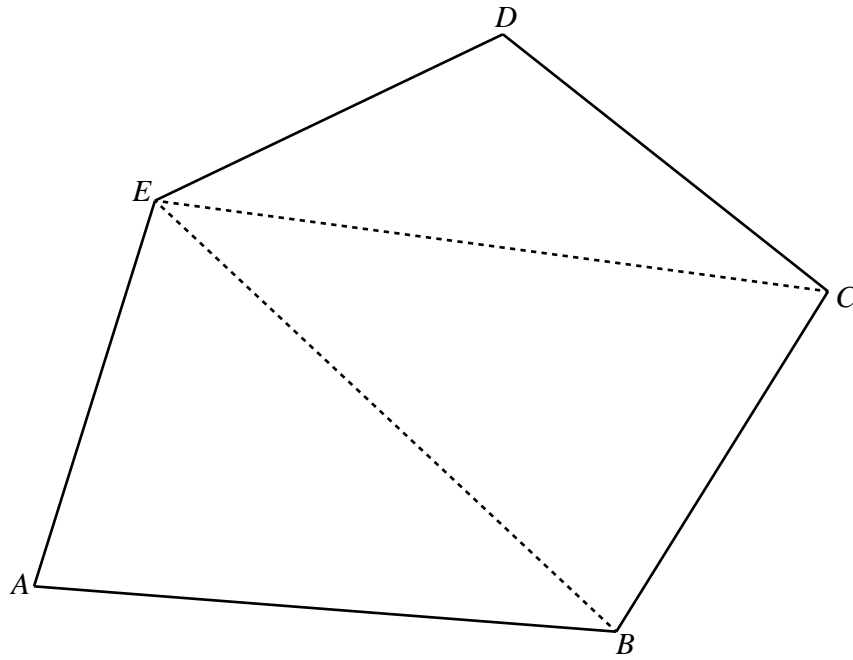
0 $\frac{1}{3}$ 0 $\frac{3}{10}$ % [1]

12 Complete these statements.

(a) 6m is the same length as mm. [1]

(b) 0 cm² is the same area as m². [1]

13



$ABCDE$ is a convex pentagon.

Explain by a diagram why the sum of the interior angles of a convex pentagon is 540° . Do not measure angles.

..... [1]

14 Simplify $x^3y^4 \times x^5y^3$.

..... [2]

15 Write 0.01824 in standard form.

..... [1]

16 Kim says that an angle of an isosceles triangle is 80° . He says that the other angles must be 60° .

Explain why Kim is wrong.

..... [2]

17 Explain why $\sqrt{3}$ is irrational.

[]

18 The mass, m kg, of a substance is directly proportional to the area, A m², of a rectangular plate of the substance.

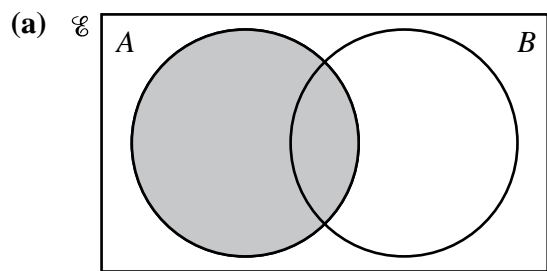
Complete this statement about the relationship between m and A .

$m \propto A$ []

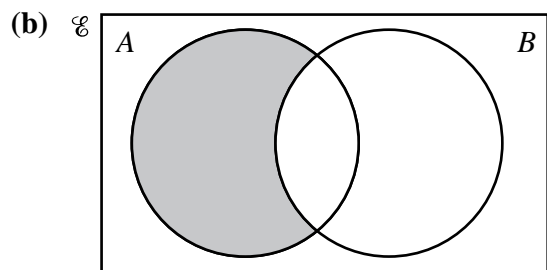
19 Rearrange the formula $5w - 3y + 7z = 0$ to make w the subject.

$w = \dots$ []

20 Use set notation to describe the shaded regions in each Venn diagram.



[]



[]

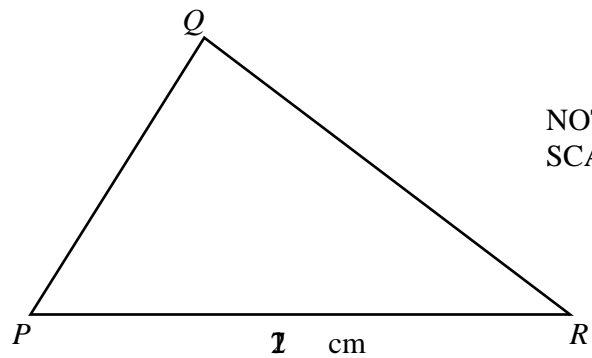
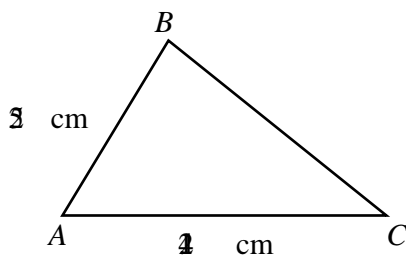
21 The radius of a sphere is 2 cm.

Work out the surface area of this sphere.

[The surface area, A , of a sphere with radius r is $A = 4\pi r^2$]

cm² [2]

22 Triangle ABC is similar to triangle PQR .



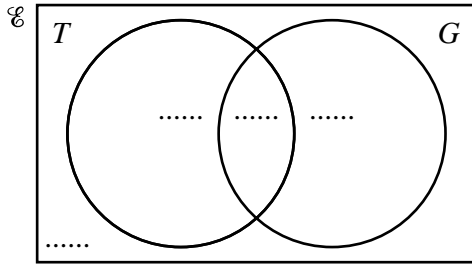
Find PQ .

$PQ =$. cm [2]

- 23 $\mathcal{U} = \{\text{children at park}\}$
 $T = \{\text{children playing}\}$
 $G = \{\text{children playing}\}$

- \mathcal{U} children at park
- T playing.
- G playing.
- $T \cap G$ playing and playing.

(a) Complete the Venn diagram.



[?]

(b) Find $T \cap G$.

. . . []

- 24 (a) Factorise completely $x^2 - 4$

. . . []

(b) Simplify $(w^5)^4$.

. . . []

10

25 Without using your calculator, work out $1\frac{7}{12} + \frac{13}{20}$.

You must show all your working and give your answer as a mixed number in its simplest form.

. [3]

26 By using each number correct to significant figures, estimate the value of $\sqrt{\frac{90\,006}{10.01^2}}$.

You must show all your working

. [2]

27 (a) The n th term of a sequence is $n^3 - 5$

Write down the first three terms of this sequence.

..... [2]

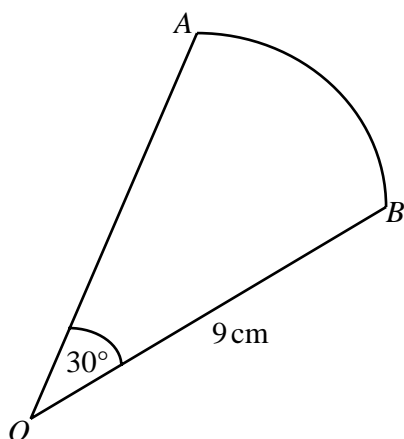
(b) Here is a sequence of numbers.

3 6 11 18 27 ...

Find an expression for the n th term of this sequence.

. . . [2]

28



NOT TO SCALE

OAB is a sector of a circle with radius 9 cm and centre O .
The angle at O is 30° .

Calculate the area of this sector.
Give your answer in terms of π .

. . . cm^2 [2]

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