EDEXCEL Mock Test Papers paper1-Test2

Mathematics

Higher Tier

Paper 1 (Non-Calculator)
Time: 1 hour 30 minutes

Paper Reference

1H

You must have: Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser.

Total Marks

Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **all** questions.
- Answer the questions in the spaces provided –there may be more space than you need.
- **Calculators may not be used.**
- Diagrams are **NOT** accurately drawn, unless otherwise indicated.
- You must **show all your working out**.

Information

- The total mark for this paper is 80 The marks for **each** question are shown in brackets –use this as a guide as to how much time to spend on each question.

Advice

- Read each question carefully before you start to answer it.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end.

Answer ALL questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

1 Work out $7.23 \div 0.12$

....

(Total for Question 1 is 3 marks)

2 Work out $4\frac{2}{7} - 3\frac{1}{5}$

Give your answer as a mixed number.

....

(Total for Question 2 is 3 marks)

3   A cube has a total surface area of 240 cm^2

Work out the volume of the cube.

.... cm^3

(Total for Question 3 is 4 marks)

4   The table below shows information about the daily temperatures in a town over 50 days.

Temperature (T °C)	Frequency
0 ≤ T < 5	6
5 ≤ T < 10	18
10 ≤ T < 15	12
15 ≤ T < 20	8
20 ≤ T < 25	6

Draw a frequency polygon for this information.
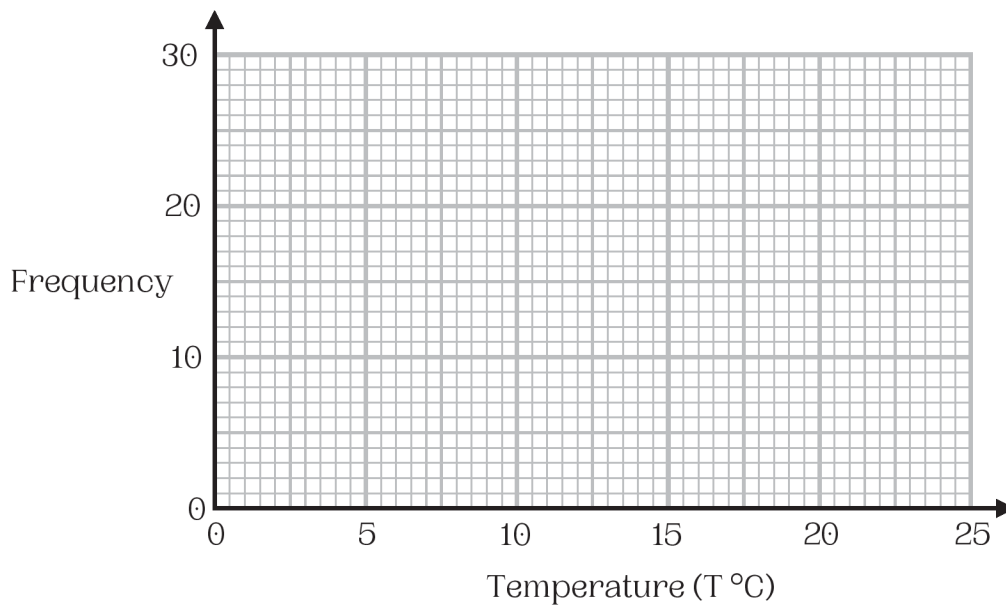
(Total for Question 4 is 2 marks)

5   **E** = {1, 2, 3, 4, 5, 6, 7, 8, 9, 10}

A = {Even numbers}   B = {Prime numbers}
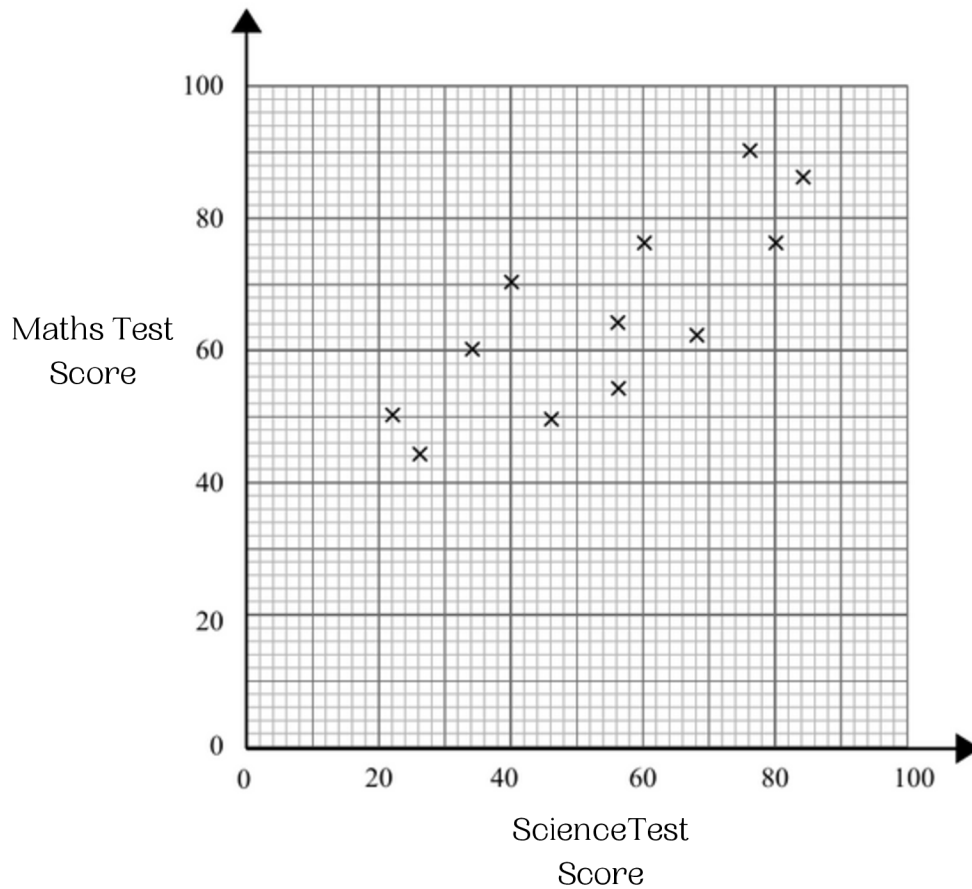
(a) Complete the Venn diagram for this information.

E

A   B
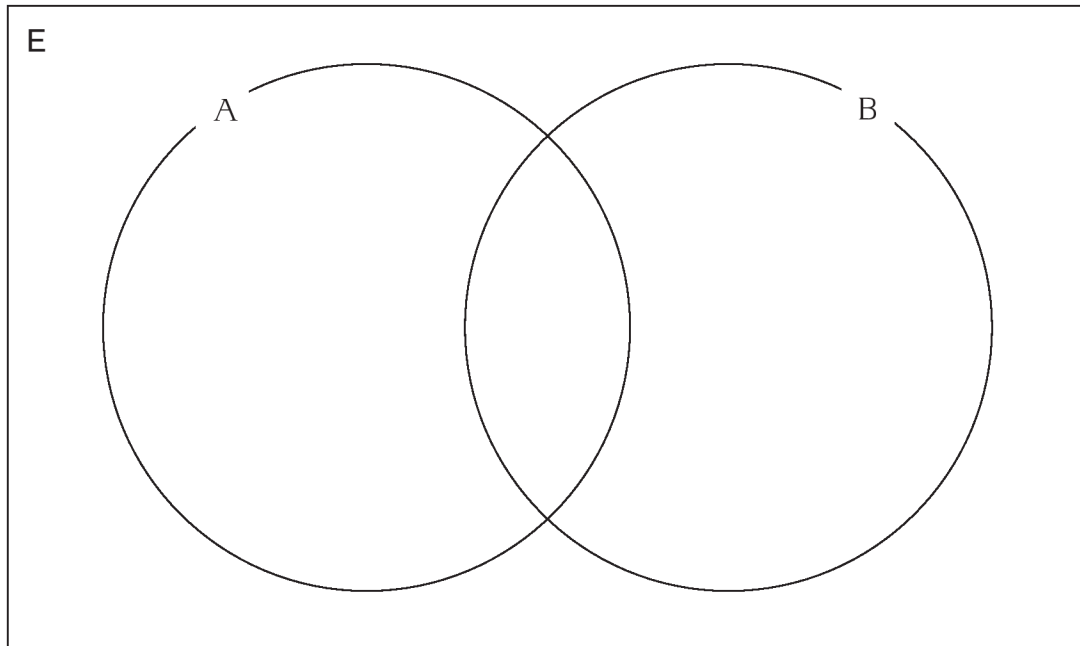
(3)

A number is chosen at random from the universal set **E**

(b) Find the probability that this number is in the set A′

....

(2)

(Total for Question 5 is 5 marks)

6 The scatter graph shows information about the test scores of some students in Maths and Science.

Maths Test Score

ScienceTest Score

Maths Test Score	70	84
Science Test Score	64	68

(a) Show this information on the scatter graph.

(1)

Another student scored 58 on the maths test.

(b) Use the scatter graph to estimate this student's score on the Science test.

....

(2)

(Total for Question 6 is 3 marks)

7 The cost of a car increases by 15%.
This 15% increase adds £450 to the cost of the car.

Work out the cost of the car before the increase.

£...

(Total for Question 7 is 2 marks)

8   A solid rectangular prism is placed on a horizontal floor.

The prism has a
            volume of 2400 cm³.
            height of 20 cm.

The prism exerts a force of 120 newtons on the floor.

Work out the pressure on the floor due to the prism.

$$\text{pressure} = \frac{\text{force}}{\text{area}}$$

.... newtons/cm2

(Total for Question 8 is 3 marks)

9   Solve the simultaneous equations

$$2x - 3y = 4$$

$$4x - y = 13$$

x = ...

y = ...

(Total for Question 9 is 3 marks)

10   ABC is a straight line.
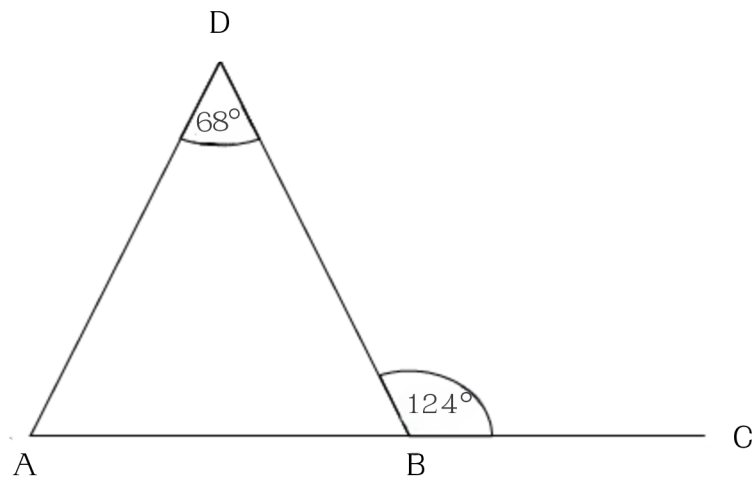
Show that ABD is an isosceles triangle

o

....

(Total for Question 10 is 4 marks)

11 Write $\dfrac{(2x^2y^2)^3}{4x^2y^2 \times 3xy^3}$ in the form $ax^b y^c$ where a, b and c are integers.

....

(Total for Question 11 is 3 marks)

12 Eeshu has two bags.

In the first bag there are 3 red balls and 7 green balls.

In the second bag there are 4 red balls and 5 green balls.

Eeshu takes at random a ball from the first bag.

She then takes at random a ball from the second bag.

Work out the probability that Eeshu takes two green balls.

....

(Total for Question 12 is 3 marks)

Prepare 4 GCSEs

13 y is directly proportional to x.

y = 20 when x = 2

Work out the value of y when x =8

y = ...

(Total for Question 13 is 3 marks)

14 (a) Factorise $a^2 - b^2$

....
(1)

(b) Simplify fully $(x^2 + 5)^2 - (x^2 - 3)^2$

....
(3)

(Total for Question 14 is 4 marks)

15 The equation of line L1 is $y = 3x - 4$

The equation of line L2 is $4y + mx - 8 = 0$

L1 is perpendicular to L2

Find the value of m.
You must show all your working.

m =..

(Total for Question 15 is 3 marks)

16 The diagram shows a solid hemisphere with a radius of 8 cm.

◄— 8 cm —►
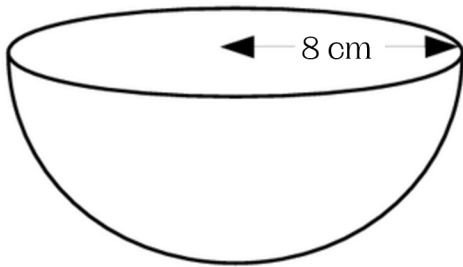
Volume of sphere = $\frac{4}{3}\pi r^3$

Surface area of sphere = $4\pi r^2$
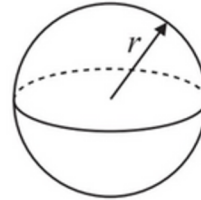
Work out the total surface area of the hemisphere.
Give your answer in terms of π.

.... cm^2

(Total for Question 16 is 3 marks)

17 Make x the subject of the formula $y = \dfrac{3(4x + 5)}{2x - 1}$

....

(Total for Question 17 is 4 marks)

18 10 kg of apples and 6 kg of bananas cost a total of 720p.
The cost of 1 kg of apples : cost of 1 kg of bananas = 4 : 5.

Work out the cost of 1 kg of apples and the cost of 1 kg of bananas.

apples...p

bananas...p

(Total for Question 18 is 4 marks)

Prepare 4 GCSEs

19 The menu in a café has drinks, sandwiches, and desserts.

There are 4 types of drinks.

There are 10 types of sandwiches.

There are y types of desserts.

The café offers 280 different ways to choose one drink, one sandwich, and one dessert. Find the value of y.

y = ...

(Total for Question 19 is 2 marks)

20   For x ≥ 0, the functions f and g are such that

$$f(x) = 2x + 5 \qquad g(x) = x + 1$$

(a) Find $g^{-1}(x)$
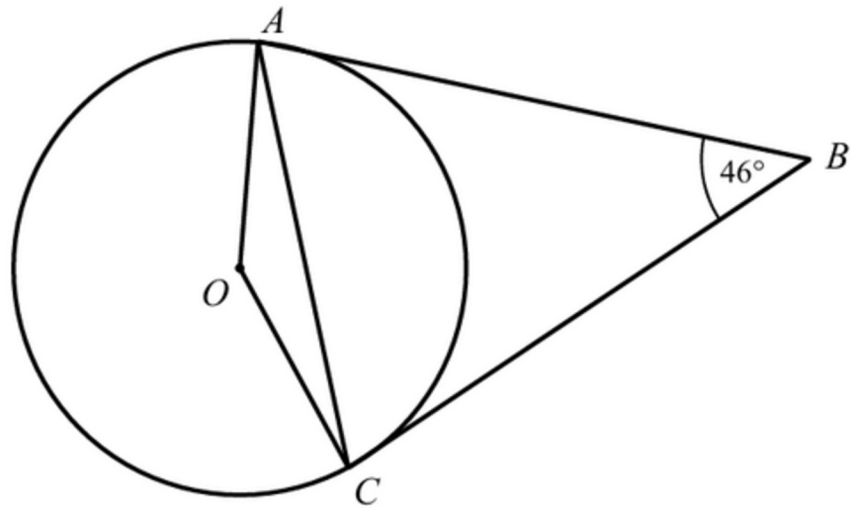
$g^{-1}(x) =$ ....
(2)

(b) Solve $gf(x) = 7$

x= ....
(3)

(Total for Question 20 is 5 marks)

21

A and C are points on the circumference of a circle, centre O.
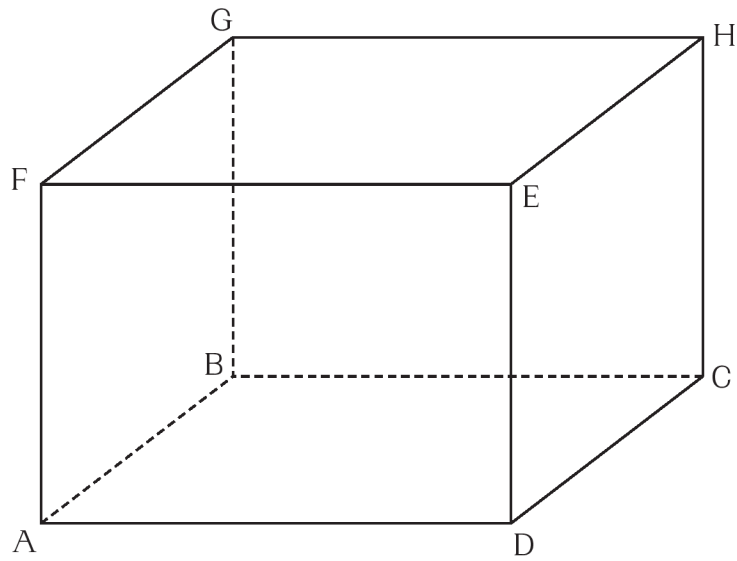AB and BC are tangents to the circle.

Angle ABC = 46°

Find the size of angle OAC.
Give reasons for each stage of your working

○

....

(Total for Question 21 is 4 marks)

22 ABCDEFGH is a cuboid.

AF = 8 cm FC = 16 cm

Work out the size of the angle between FC and the plane ABCD.

.... °

(Total for Question 22 is 2 marks)

23   Show that $\dfrac{5+2\sqrt{3}}{2+\sqrt{3}}$ can be written as $4-\sqrt{3}$

....

(Total for Question 23 is 3 marks)

Turn over ▶

24   Find the set of possible values of x for which

$$2x^2-9 < 0 \quad \text{and} \quad 8-4x-x^2 > 0$$

You must show all your working.

TOTAL FOR PAPER IS 80 MARKS