Mock Test Papers - Paper3 - Test1

Paper 3 (Foundation Tier)

Time allowed: 1 hour 30 minutes

F

You must have:
• the Formulae Sheet for Foundation Tier (inside this document)

You can use:
• a scientific or graphical calculator
• geometrical instruments
• tracing paper

Please write clearly in black ink.Do not write in the barcodes.

Centre number [ ][ ][ ][ ][ ]   Candidate number [ ][ ][ ][ ]

First name(s) _____

Last name _____

INSTRUCTIONS

• Use black ink. You can use an HB pencil, but only for graphs and diagrams.
• Write your answer to each question in the space provided. If you need extra space use the lined pages at the end of this booklet. The question numbers must be clearly shown.

• Answer all the questions.
• Where appropriate, your answer should be supported with working.
Marks might be   given for using a correct method, even if your answer is wrong.

• Use the π button on your calculator or take π to be 3.142 unless the question says something different.
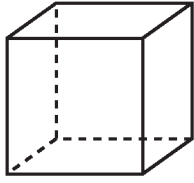
INFORMATION

• The total mark for this paper is 100.
• The marks for each question are shown in brackets [ ].
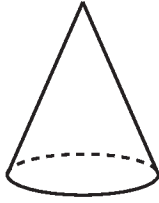This document has 24 pages.

ADVICE

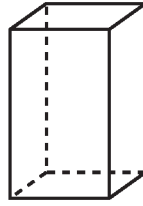• Read each question carefully before you start your answer.

1   (a) These four solids are labelled A, B, C and D.
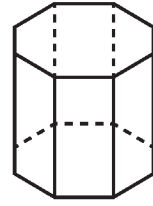
    A   B   C   D

        Write down the letter of the solid that is not a prism.

                                (a)   ....   [1]

(b) These four triangles are labelled E, F, G and H.
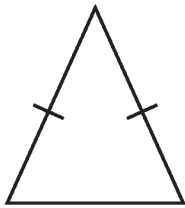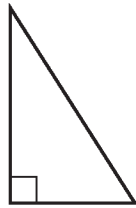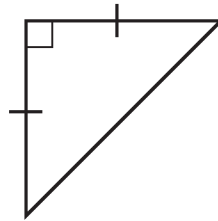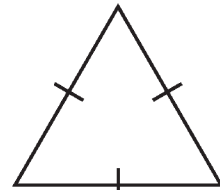
    E   F   G   H

        Write down the letter of the right-angled isosceles triangle.

                                (b)   ....   [1]

(c) On the centimetre grid, draw a triangle with an area of 10cm^2
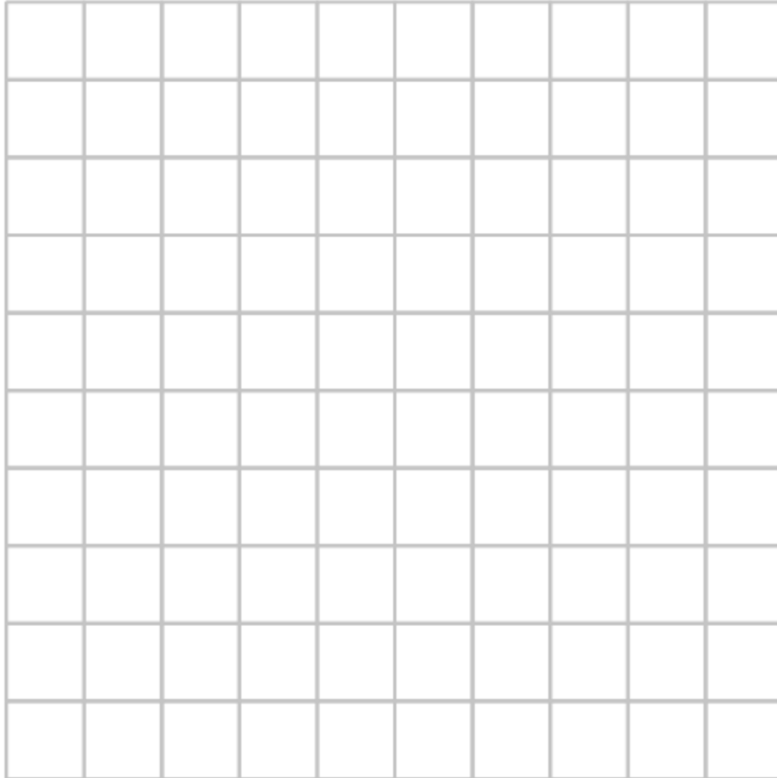
[2]

2 The factors of 12 are 1, 2, 3, 4,6 and 12.
The factors of 15 are 1, 3,5 and 15.

a) Use one of the symbols <, > or = to make each statement true.

(i) The number of factors of 12 .... the number of factors of 15. [1]

(ii) The highest factor of 12 .... the highest factor of 15. [1]

(b) Write down the highest common factor (HCF) of 12 and 15.

(b) .... [1]

3   (a) Complete this prime factorisation of 72.
         You may not need to use all of the answer lines.

$$72 = 2 \times 2 \times 2 \times \text{.........................}$$

....

....

[1]

    (b) A teacher says that the square root of their favorite number is 8.
         Write down the teacher's favorite number.

(b)   ....   [1]

Write $\dfrac{45}{10^3}$ as a percentage.

(c)

(c)   .... %   [1]

4 (a) A recipe for muffins states
Multiply the number of muffins by 5.5 to find the number of grams of sugar needed.
Emily uses 220 g of sugar.

How many muffins does Emily make?

(a) .... [2]

(b) The estimated cost of driving

- An electric car is 75 pence per mile.
- A diesel car is 85 pence per mile.

Jordan expects to drive 10,000 miles next year.

Use this information to calculate how much money Jordan can expect to save next year by driving an electric car instead of a diesel car.

(b) £ .... [3]

5   This is a one-centimetre square grid.
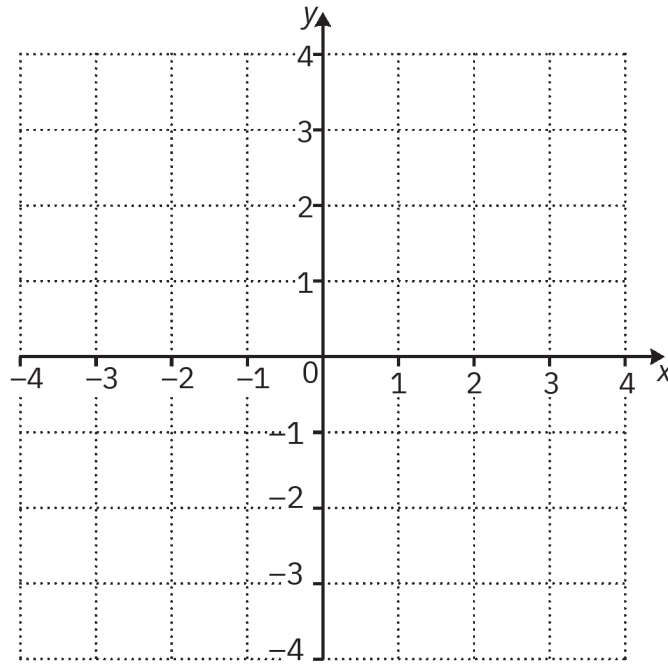
(a)   On the grid, plot point P at (1, -2).   [1]

(b)   The line PQ joins point P to point Q.
      Point Q is at (1, 2).
      Find the length of the line PQ.

                                              (b)   .... cm   [1]

(c)   On the grid, draw the line y = -1.   [1]

(d)   PQRS is a rectangle that fits on the grid.
      Point R is on the line y = -1.
      Find the coordinates of point S.

                                              (d)   S is at (..................... , ...)   [2]

6 (a) Simplify.

(i) 6p x 8

(a)(i) .... [1]

(ii) q x q x q x q x q

(ii) .... [1]

(iii) $d^2 \times d^3 \times d^3$

(iii) .... [1]

(b) Factorise.

8x -16

(b) .... [1]

7 A student takes two exams.
In Exam 1, the student scores 56 out of 80.

Exam 2 is also out of 80.

Calculate how many marks the student needs in Exam 2 to have an average of 60% across the two exams.

.... [3]

8   (a)   Work out the area of this trapezium.

8 cm

Not to scale

4 cm

6 cm

10 cm
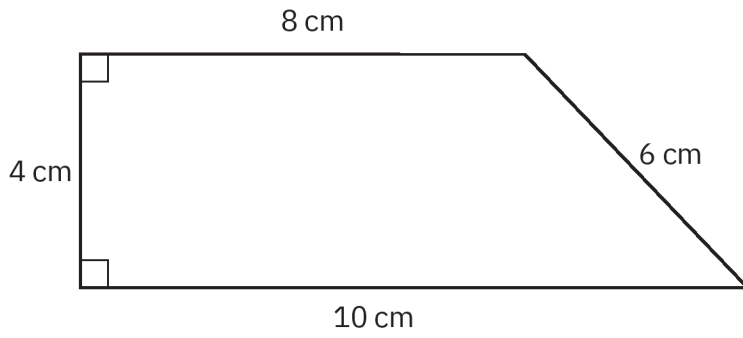
(a)   .... cm2   [2]

(b)   The circumference of a circle, in terms of π, is 50 π cm.

Work out the radius of the circle.

(b)   .... cm   [2]

9   ℰ = {1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15}
    T = {2, 4, 6, 8, 10, 12}
    F = {3, 6, 9, 12, 15}

(a) The elements 1 and 2 have been entered on this Venn diagram.
     Complete the Venn diagram to show all of the elements.
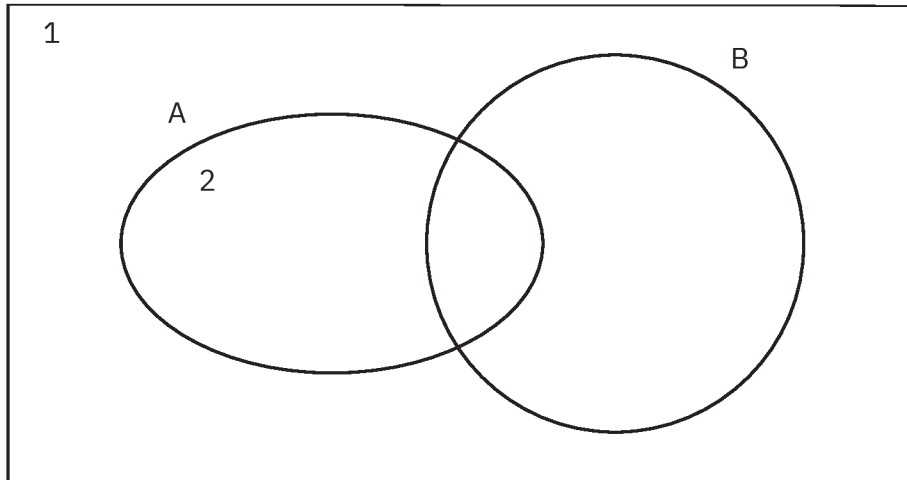
[2]

(b) Mia picks one of the 15 elements in the universal set, ℰ, at random.

Write down the probability that the element is a member of both set A and set B.

(b)   ....   [1]

(c) Tom picks one of the 15 elements in the universal set, ℰ, at random.

Tom says

The probability the element is in set A is 6.
                                         $\overline{15}$
The probability the element is in set B is 5.
                                         $\overline{15}$

Therefore, the probability the element is in set A or set B is $\frac{6}{15} + \frac{5}{15} = \frac{11}{15}$.

Tom is wrong.

Explain Tom's error and give the correct answer.

Tom's error : ....
.... correct answer : .... [2]

10 (a) Write 15 : 75 as a ratio in its simplest form.

(a) .... : .... [2]

(b) In a box of marbles, $\frac{1}{4}$ of the marbles are blue.

The rest of the marbles are yellow.

The ratio of the number of blue marbles to the number of yellow marbles can be written in the form $1 : n$.

Find the value of n.

(b) n = ... [2]

(c) A bakery has a large order for cookies.
The bakery has several ovens that bake cookies.
Each oven bakes the same number of cookies in a day.
4 ovens can complete the order in 20 days.
Calculate the number of ovens needed to complete the order in 10 days.

(c) .... [3]

11 Isabella is thinking of two numbers.
Both numbers are square numbers greater than 1.
The sum of the numbers is 100.
Write down the two numbers.

.... and ....   [2]

12 (a) Markers are sold in small packs of 10 markers, medium packs of 15 markers, and large packs of 20 markers.

Ivy buys 4 small packs of markers, 3 medium packs of markers, and some large packs of markers.

In total, Ivy buys 175 markers.

Work out how many large packs of markers Ivy buys.

(a) .... [3]

(b) Emily buys a set of paintbrushes for £25 and 5 tubes of paint for £6.50 each.
Emily pays with 2 £20 notes.
How much change does Emily get?

(b) .... [3]

13   (a)   Simplify 9a + 6c - 5a +2c

(a)   .... [2]

(b)   Round the number 6.9651 to one decimal place.

(b)   .... [1]

Prepare 4 GCSEs

14 (a) James wants to distribute a certain amount of money among three friends:

- Ivy gets $\dfrac{1}{4}$

- Eeshu gets $\dfrac{1}{3}$

- Ella gets $\dfrac{5}{12}$

Determine whether James can distribute the money as planned.
Justify your answer with calculations.

.... because ....
.... [2]

(b)   If Ivy receives £200, calculate how much money Eeshu receives.

(b)   £ ....   [2]

15 Put brackets in the following statements to make them true

(a) 5 + 3 x 8 -2 = 39

[1]

(b) 9 + 3² x 10 ÷ 2 = 90

[1]

16 Expand and simplify (y - 1)(y - 4)

.... [2]

17 The attendance at a concert is recorded as 25,000, rounded to the nearest thousand.

(a) Write the error interval for c, the number of people at the concert.

(a) ....≤ c < 25,500   [1]

(b) The number of people attending a theater performance is recorded as 25,500,   [2]

rounded to the nearest hundred.

Show that there could be fewer people at the theater than at the concert.

18 Rearrange the following formula to make x the subject:

yx = −3z

.... [2]

19 (a) A bag contains red and green marbles in the ratio of 3:7.
        If there are 150 red marbles, how many marbles are in the bag altogether?

(a) .... [3]

(b) Jacob buys a phone for £250. Six months later, he sells it for £175.

Calculate the percentage decrease in the value of the phone.

(b) .... [3]

Turn over

20 When purchased, a new laptop decreases in value each year.
Emma buys a new laptop for £1,200.
She finds this table in a tech magazine:

Year	Loss in value
Year 1	20%
Year 2	15%

Emma predicts that her laptop's value will be £816 at the end of Year 2.
Show that Emma's prediction is incorrect.

[4]

21   The sizes of files in a computer are classified as small, medium, or large based on their storage size.

This table shows the percentage, in terms of y, of each file size stored on the computer:

Length of word	Percentage (%)
Short	2y + 8
Medium	3y - 4
Long	y

Calculate the percentage of files on the computer that are classified as small files.
Show your working.

.... %   [5]

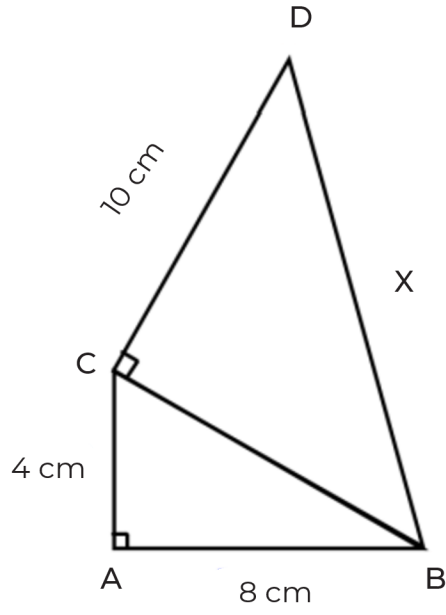22 The diagram represents a park with three trees located at points P, Q, and R.
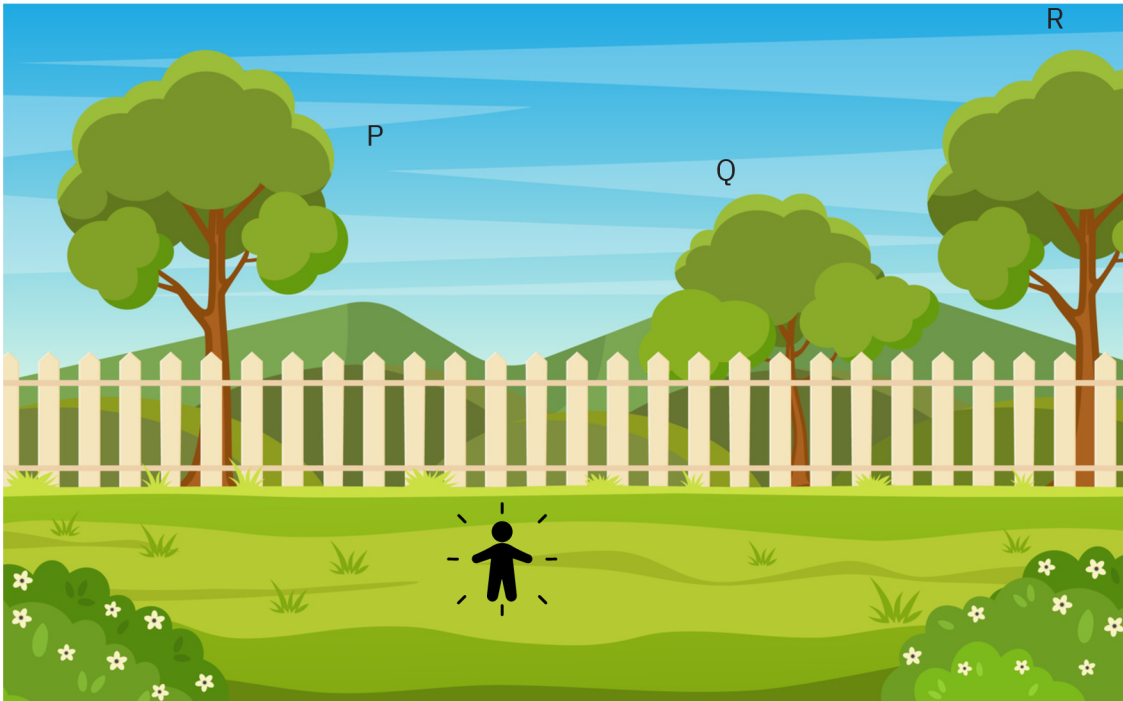
A person is:

- the same distance from P and Q,
- and the same distance from PQ and QR.

Using a ruler and compasses only, construct the location of the person.
Clearly label the position on your diagram.

[5]

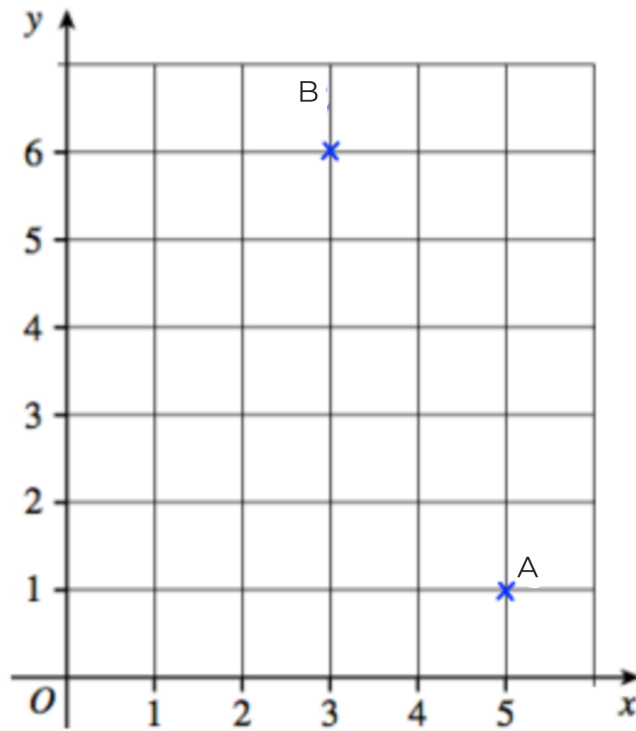23 (a) Below are two triangles, ABC and BCD.

Find x

.... cm   [4]

(b) Round the number 9.869 to two decimal places.

.... [1]

24 (a) ABC is an isosceles triangle

Write down the coordinates of point C

.... [3]

(b) Simplify $\dfrac{5p + 10}{2}$

.... [1]

25   A set of six numbers has a median of 7.

All of the numbers are odd.

The range of the numbers is 8.

The mode of the numbers is 5.

Write down a possible set of six numbers.

…………, …………, …………, …………, ………… and ………… [4]

END OF QUESTION PAPER