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OCR
RECOGNISING ACHIEVEMENT

Monday 11 November 2013 – Morning

GCSE METHODS IN MATHEMATICS

B391/01   Methods in Mathematics 1 (Foundation Tier)

Candidates answer on the Question Paper.

OCR supplied materials:
None

Other materials required:
*   Geometrical instruments
*   Tracing paper (optional)

Duration: 1 hour

Candidate forename		Candidate surname	

Centre number						Candidate number					

INSTRUCTIONS TO CANDIDATES

*   Write your name, centre number and candidate number in the boxes above. Please write clearly and in capital letters.
*   Use black ink. HB pencil may be used for graphs and diagrams only.
*   Answer **all** the questions.
*   Read each question carefully. Make sure you know what you have to do before starting your answer.
*   Your answers should be supported with appropriate working. Marks may be given for a correct method even if the answer is incorrect.
*   Write your answer to each question in the space provided. Additional paper may be used if necessary but you must clearly show your candidate number, centre number and question number(s).
*   Do **not** write in the bar codes.

INFORMATION FOR CANDIDATES

*   The number of marks is given in brackets **[ ]** at the end of each question or part question.
*   Your quality of written communication is assessed in questions marked with an asterisk (*****).
*   The total number of marks for this paper is **60**.
*   This document consists of **16** pages. Any blank pages are indicated.

WARNING

No calculator can be used for this paper

OCR is an exempt Charity

Turn over

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Formulae Sheet: Foundation Tier

Area of trapezium $= \frac{1}{2}(a + b)h$
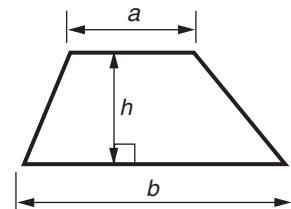
Volume of prism = (area of cross-section) × length

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3
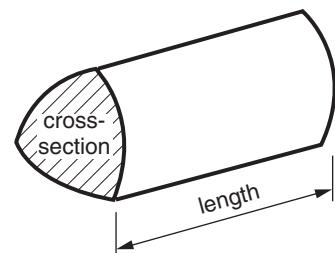
Answer **all** the questions.

1   Work out.

   (a) $423 + 88$

   (a) _____ **[1]**

   (b) 24×7

   (b) _____ **[1]**

   (c) $3.5 - 2.1$

   (c) _____ **[1]**

2   **(a)** Estimate the size of angle A.
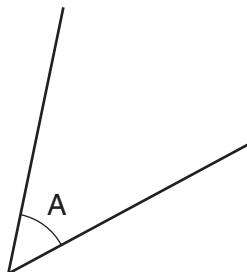
   (a) _____ ° **[1]**

   (b) Circle the word in this list which describes angle A.

   obtuse   **right-angled**   **acute**   **reflex**   **[1]**

3 Here are some number cards.

0.15	0.2	5	0.5	0.1

100	4	25	10

Choose the correct card for each answer.

(a) $\dfrac{1}{5} = $ [ ] [1]

(b) $20 \times \dfrac{1}{5} = 20 \div$ [ ] [1]

(c) $20 \times \dfrac{1}{5} = $ [ ] [1]

(d) $50 \times 0.5 = $ [ ] [1]

(e) $50 \div 0.5 = $ [ ] [1]

4 Here is a fair 8-sided spinner with equal sections.
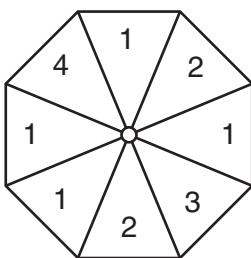
(a) Which number has an evens chance of being landed on?

(a) _____ **[1]**

(b) What is the probability that the spinner

   (i) lands on the number 3,

**(b)(i)** _____ **[1]**

   (ii) lands on an odd number?

(ii) _____ **[1]**

(c) Here is a blank fair 8-sided spinner.

Put numbers on this spinner so that

- it contains odd and even numbers
- the probability of landing on the number 2 is $\frac{1}{4}$
- the probability of landing on an even number is **greater** than the probability of landing on an odd number.
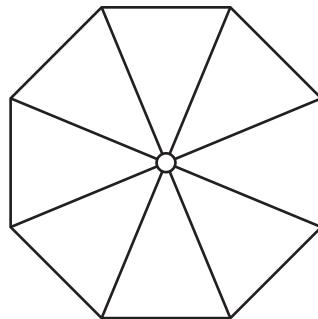
[2]

**5*** A retirement home wants to install handrails along a corridor.
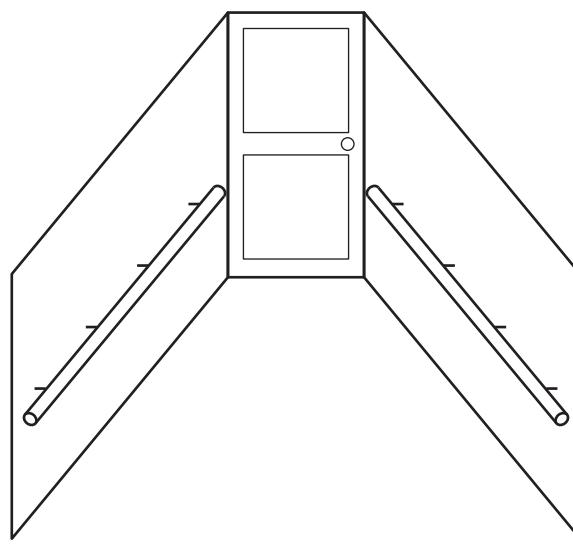
- The corridor is 11 m long.
- The handrails are installed on both sides.
- The handrails can only be bought in lengths of 1.5 m.
- The handrails can be cut or joined together with no gaps or overlaps.
- Each 1.5 m length of handrail costs £7.

What is the minimum total cost of the handrails for the corridor?

_____

_____

_____

_____

_____

_____

_____ **[4]**

6   Choose the correct word from the list to fill in each of the labels on the circle.

centre   **diameter**   **tangent**   **radius**

chord   **sector**   **circumference**
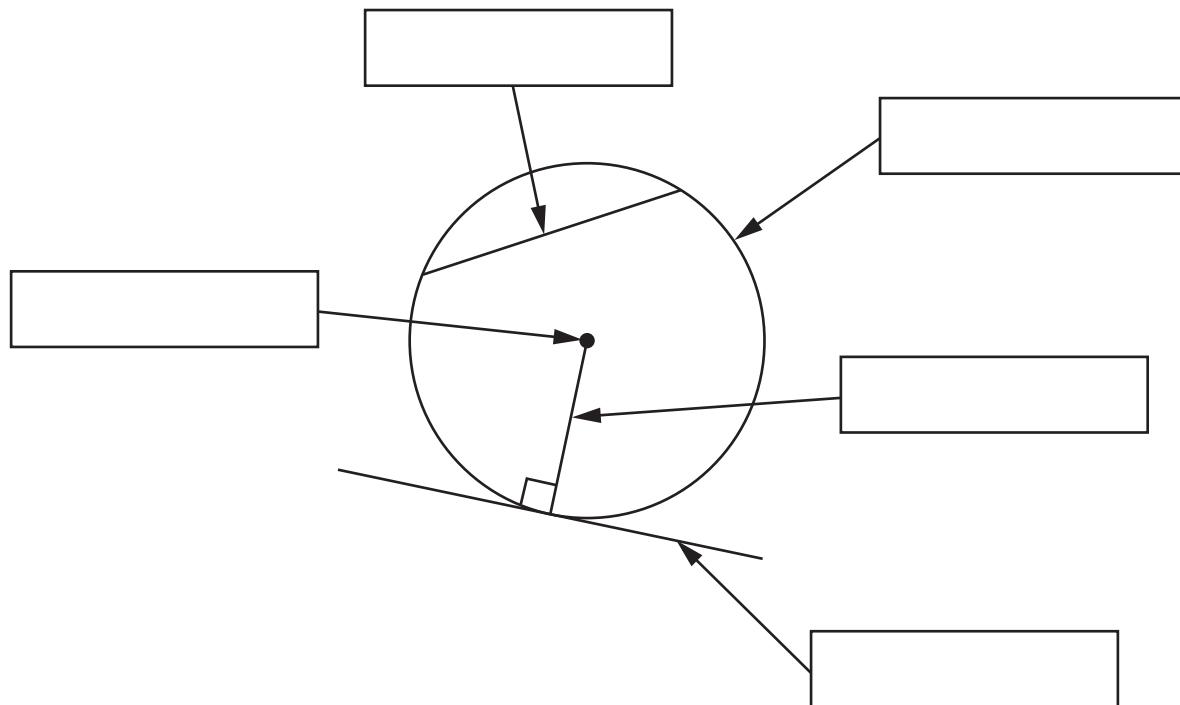
[5]

7 **(a)** Work out.

    (i) 5.27×10

                                                   (a)(i) _____ **[1]**

    (ii) $78.3 \div 100$

                                                    (ii) _____ **[1]**

(b) You are given that $24 \times 16 = 384$.

    Using this, work out.

    (i) 240×16

                                                   (b)(i) _____ **[1]**

    (ii) 24×1.6

                                                    (ii) _____ **[1]**

    (iii) $384 \div 1.6$

                                                    (iii) _____ **[2]**

    (iv) $3.84 \div 24$

                                                    (iv) _____ **[1]**

8 **(a)** Work out.

    (i) 6^2

                                          (a)(i) _____ **[1]**

    (ii) 3^3

                                            (ii) _____ **[1]**

    (iii) 2^6

                                            (iii) _____ **[1]**

(b) Connor is estimating positive square roots which are not whole numbers.
He says,

        "The whole number closest to the square root of 150 is 11."

Explain why Connor is not correct.

_____

_____

_____

_____ **[2]**

Turn over

9 A dance school has several different classes.
The Venn diagram shows the number of students who attend the classes.

𝓔 represents students attending the dance school.
B represents students attending the ballet class.
T represents students attending the tap class.
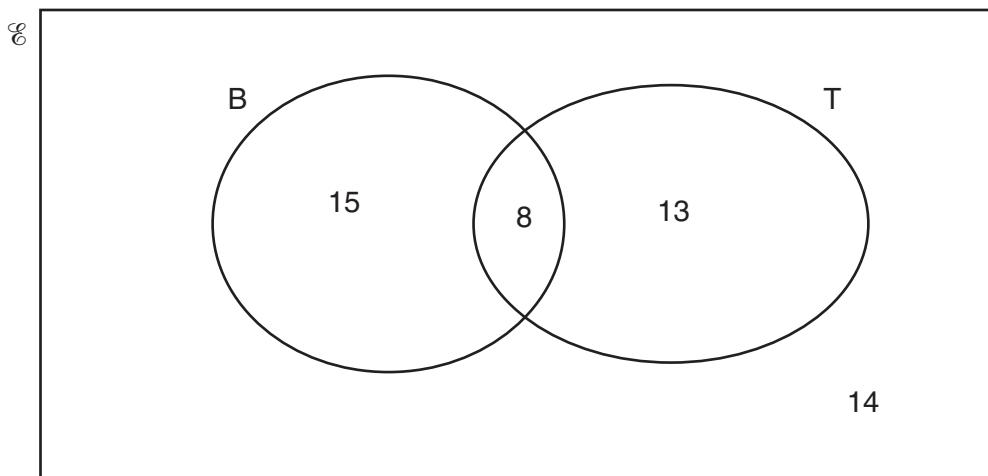
(a) How many students do not attend the ballet or tap classes?

(a) _____ **[1]**

(b) How many students attend the dance school?

(b) _____ **[1]**

(c) A student is chosen at random from the dance school.

Find the probability that the student

(i) attends the tap class **only**,

(c)(i) _____ **[1]**

(ii) attends the ballet class,

(ii) _____ **[1]**

(iii) is a member of B ∩ T.

(iii) _____ **[2]**

10 **(a)** Complete the table for the function $y = 6x + 20$.

x	0	1	2	3	4	5
y		26			44	50

[2]

(b) Draw the graph of $y = 6x + 20$ for values of x between 0 and 5.
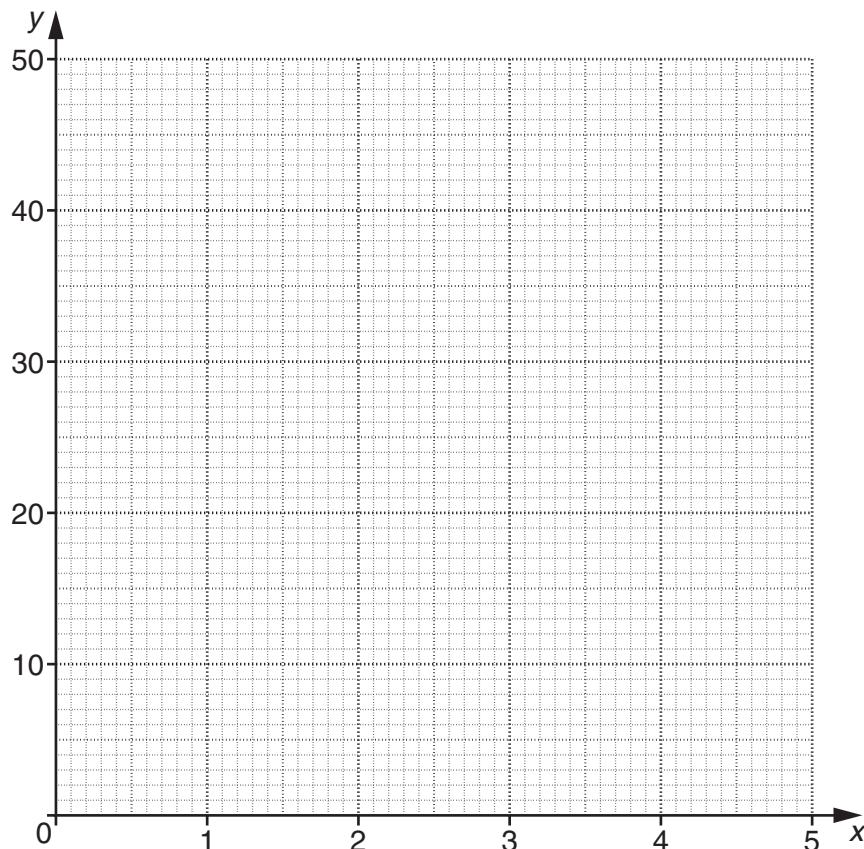
[3]

(c) Use your graph to find the value of x when $y = 40$.

(c) $x =$ _____ [1]

Turn over

11 (a) Give the names of three special quadrilaterals that have two pairs of equal sides but not all four sides equal.

(a) _____

_____

_____ **[2]**

(b) Give the names of two special quadrilaterals that have exactly two lines of symmetry.

(b) _____

_____ **[2]**

12 (a) Fill in the gaps to make this statement correct.

$$5x + 4 - (\text{\_\_\_\_} + \text{\_\_\_\_}) = 2x - 1$$ **[2]**

(b) Put + or − in each of the gaps to make this statement correct.

$$4a \text{\_\_\_\_} 3b \text{\_\_\_\_} (a \text{\_\_\_\_} 2b) = 3a - b$$ **[2]**

13 On this one-centimetre squared grid, A is the point (⁻4, 5), B is the point (2, 5) and
    D is the point (0, 2).
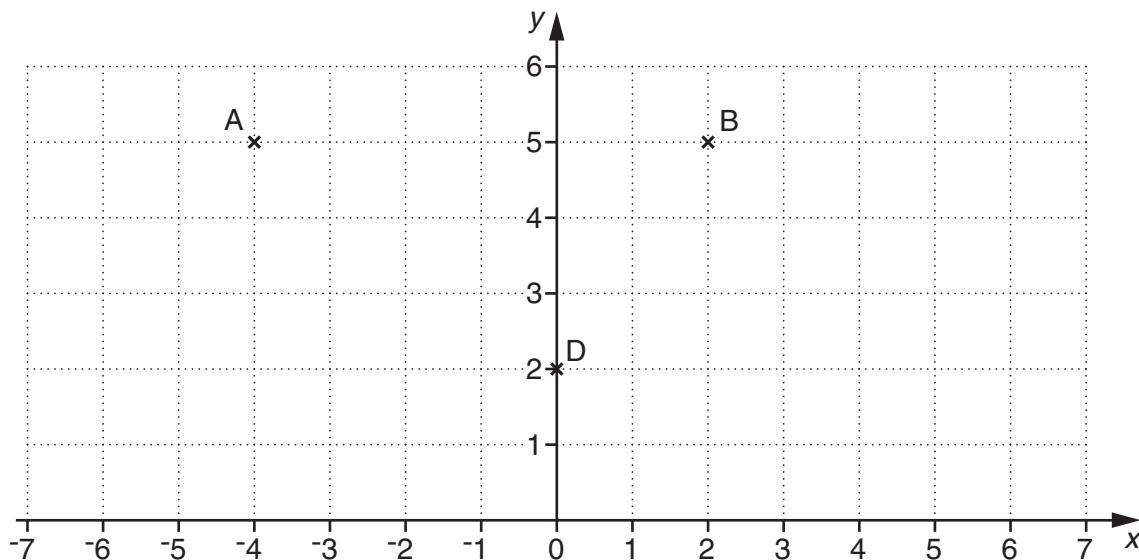
ABCD is a parallelogram.

(a) Find the coordinates of the point C.

(a)   (_____ , _____)   **[2]**

(b) Find the area of the parallelogram.

(b) _____ cm² **[2]**

END OF QUESTION PAPER

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