

Write your name here

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| Surname | Other names |
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**Edexcel International
Lower Secondary
Curriculum**

Centre Number

| | | | | |
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Candidate Number

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Mathematics

Year 9

Achievement Test

Wednesday 5 June 2013 – Afternoon
Time 1 hour 20 minutes

Paper Reference

LMA01/01

You must have:
Ruler, calculator

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 are allowed.



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.
- Try to answer every question.
- Check your answers if you have time at the end.

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Turn over ►

PEARSON

SECTION A

Answer ALL questions.

In Section A put a cross in one box to indicate your answer. If you change your mind, put a line through the box and then put a cross in another box .

Each question in Section A is worth one mark.

1 What is the Lowest Common Multiple of 50 and 150?

10

50

150

300

2 A fish tank has a volume of 0.875 m^3 .

How many litres of water will be needed to fill the tank?

875 l

8 750 l

87 500 l

87 5000 l

3 What is 65 479 453 rounded to the nearest million?

65 000 000

65 500 000

65 480 000

70 000 000

4 The point A has coordinates (7, 2).

Which point does A map onto when it is reflected in the line $y = x$?

(-7, 2)

(-2, -7)

(2, -7)

(2, 7)

5 Simplify the ratio 4 kg : 600 g

1 : 150

2 : 300

2 : 3

20 : 3



6 What is an expression for 'one less than twice m '?

$2m - 1$



$2m - 2$



$2m + 1$



$m - 1$



7 What is the median of these numbers?

7 -4 8 0 -1 7 4

3



4



7



12



8 Look at the word PYTHAGORAS

If a letter is chosen at random what is the probability of choosing the letter A?

0.1



0.2



0.5



0.8



9 Work out $-18 + -2 \times -4$

-10



-64



64



80



10 The prime factor decomposition of $84 = 2 \times 2 \times 3 \times 7$

What is the lowest number that you need to multiply 84 by in order to obtain a square number?

7



14



21



84



11 Here are the first five terms in an arithmetic sequence

7 11 15 19 23

What is the 50th term in the sequence?

200

203

230

350

12 Convert 20 cm^3 into mm^3 .

200 mm^3

$2\,000 \text{ mm}^3$

$20\,000 \text{ mm}^3$

$200\,000 \text{ mm}^3$

13 How many lines of symmetry does an isosceles trapezium have?

1

2

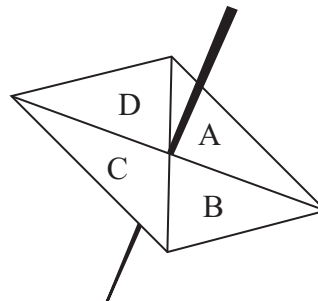
3

4

14 A four-sided spinner is spun twice.

One possible outcome is A, B

How many possible outcomes are there?



4

8

12

16

15 What is the area of a circle with a diameter of 12 cm , in terms of π ?

$6\pi \text{ cm}^2$

$12\pi \text{ cm}^2$

$36\pi \text{ cm}^2$

$144\pi \text{ cm}^2$



16 What is the volume of this cuboid?

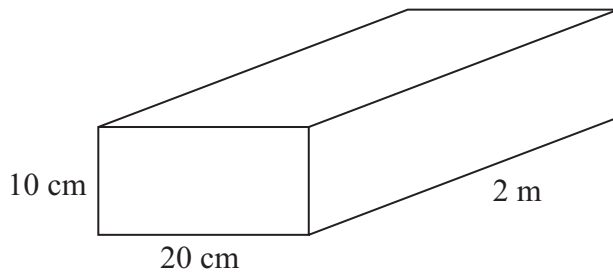


Diagram **NOT**
accurately drawn

400 cm³

4 000 cm³

40 000 cm³

400 000 cm³

17 How many edges does a square-based pyramid have?

4

5

6

8

18 Work out the value of $3c^2 - 4d$ when $c = 5$ and $d = -2$

67

83

217

233

19 What is the volume, to the nearest cm³, of the cylinder with diameter 6 cm and height 11 cm?

66 cm³

207 cm³

311 cm³

1244 cm³

20 Which multiplier represents a decrease of 8%?

0.08

0.2

0.8

0.92



21 The seating capacity of a stadium is 60 400 to the nearest hundred.

What is the largest possible seating capacity for the stadium?

60 449

60 450

60 499

60 500

22 Simplify $(3^{-4})^2$

3^{-2}

3^{-8}

9^{-8}

9^{-16}

23 A regular polygon has an exterior angle of 40°

How many sides has the polygon?

7

8

9

10

24 What is the missing length in this right-angled triangle?

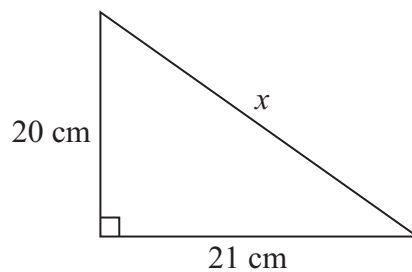


Diagram **NOT** accurately drawn

22 cm

28 cm

29 cm

41 cm



25 The density of steel is 7.85 g/cm^3 .

The volume of a steel nail is 0.651 cm^3 .

What is the mass of the steel nail to one decimal place?

0.1 g

5.1 g

8.5 g

12.1 g

26 What is 740 000 written in standard form?

7.4×10^{-5}

7.4×10^4

74×10^4

7.4×10^5

27 What is the reciprocal of $1\frac{2}{3}$?

$\frac{3}{5}$

$\frac{3}{2}$

$\frac{5}{3}$

$\frac{5}{2}$

28 What is the value of $8y^0$?

0

1

8

81

29 Which line is perpendicular to $y = 2x - 3$?

$$y = \frac{1}{2}x - 3$$

$$y = -\frac{1}{2}x + 1$$

$$y = 2x + 1$$

$$y = \frac{1}{2}x + 3$$



30 Look at the triangle.

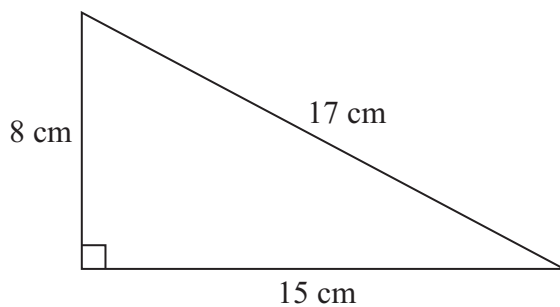


Diagram **NOT** accurately drawn

The triangle is enlarged by scale factor 2.5

What is the perimeter of the enlarged triangle?

40 cm

80 cm

100 cm

150 cm

TOTAL FOR SECTION A IS 30 MARKS



SECTION B

Answer ALL questions.
You must show all your working.

31

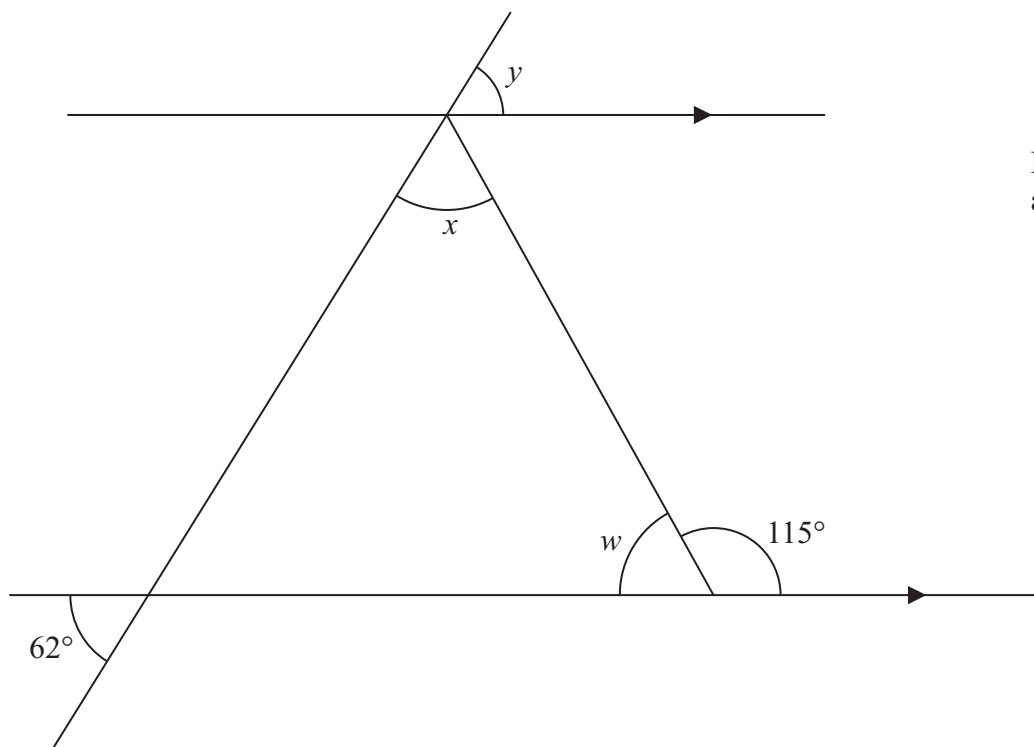


Diagram **NOT**
accurately drawn

Calculate the size of

(a) angle w

.....
(1)

(b) angle x

.....
(1)

(c) angle y

.....
(1)

(Total for Question 31 is 3 marks)



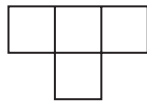
32 Look at the shapes made from squares.

Shape 1



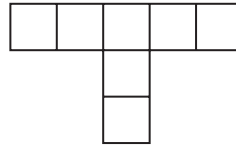
1 square

Shape 2



4 squares

Shape 3



7 squares

(a) Draw the diagram for shape 4.

(1)

(b) Complete the table.

| | | | | | |
|-------------------|---|---|---|---|---|
| Shape number | 1 | 2 | 3 | 4 | 5 |
| Number of squares | 1 | 4 | 7 | | |

(1)

(c) How many squares are there in the tenth shape?

.....
(1)

(d) Complete this statement to describe the position-to-term rule.

Number of squares = shape number \times -

(1)

(Total for Question 32 is 4 marks)



33 Look at the floor plan of a classroom.

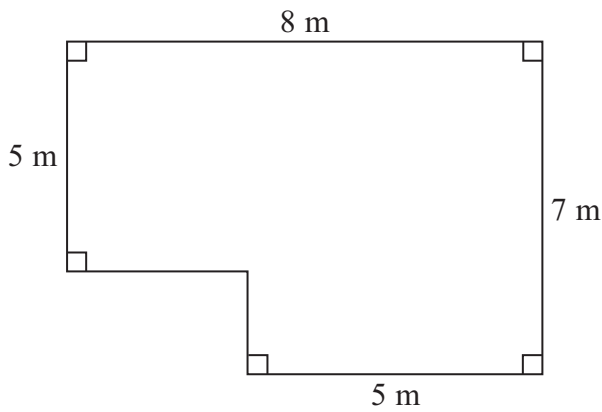


Diagram **NOT**
accurately drawn

(a) Find the area of the classroom in square metres.

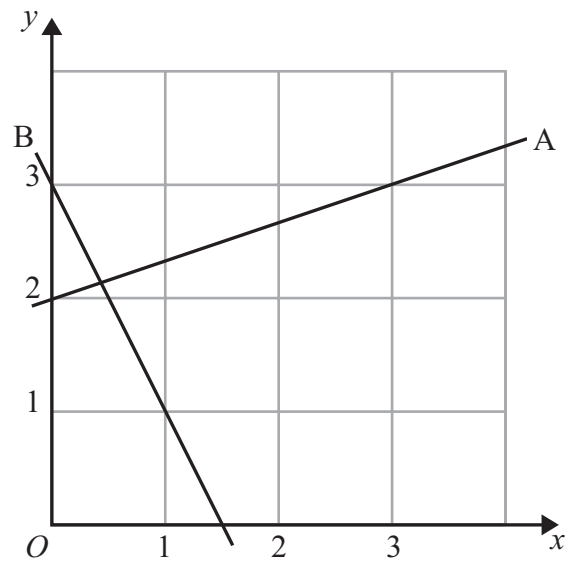
..... m²
(3)

(b) Convert your answer to square centimetres.

..... cm²
(1)

(Total for Question 33 is 4 marks)





(a) Find the gradient of line A.

.....
(2)

(b) The gradient of line B is -2 .

What is the equation of line B?

.....
(1)

(c) A third line, C, has equation $y = \frac{x}{2} + 7$.

Find the x -coordinate where the line C crosses the x -axis.

$x =$
(2)

(Total for Question 34 is 5 marks)



35 Simplify:

(a) $f^2 \times 4f^3 \times 6f^4$

.....
(2)

(b) $g^5 \div g$

.....
(1)

Expand and simplify:

(c) $3(4x + 7) - 2(5 - 3x)$

.....
(2)

(d) $(x - 6)^2$

.....
(2)

(Total for Question 35 is 7 marks)



36 A drawing pin was dropped 100 times and the results recorded in a table.



Point up



Point down

| | Frequency |
|------------|-----------|
| Point up | 72 |
| Point down | 28 |

(a) What is the relative frequency for landing point up?

.....
(1)

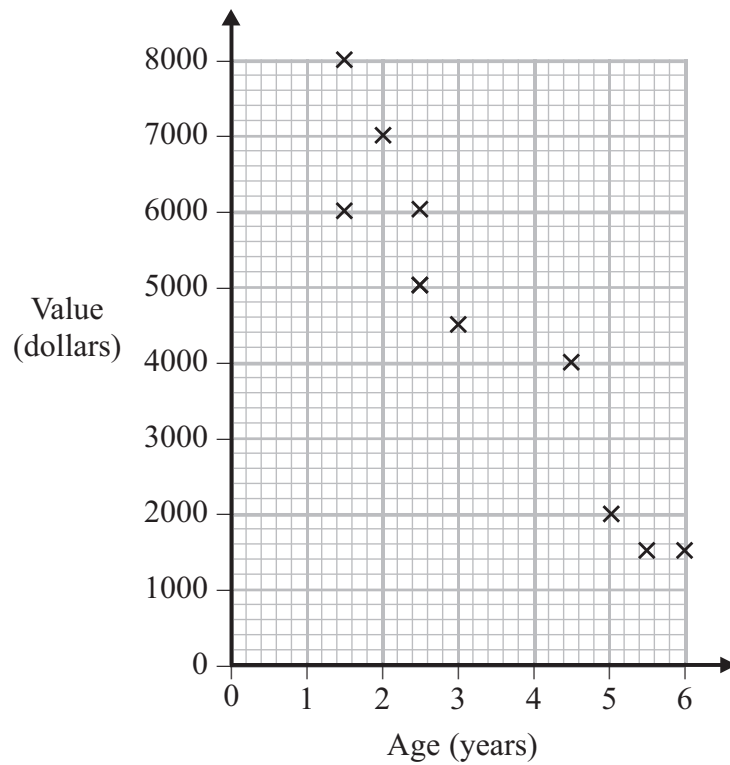
(b) If the drawing pin was dropped 500 times, calculate the expected number of times it lands point up.

.....
(1)

(Total for Question 36 is 2 marks)



37 The scatter graph shows the value, in dollars, of 10 cars of different ages.



(a) Describe the correlation between the age of a car and its value.

.....
(1)

(b) Draw a line of best fit on the scatter graph.

(1)

(c) Use your line of best fit to estimate the value of a car that is 4 years old.

\$
(1)

(Total for Question 37 is 3 marks)



38 Chloe and Michelle share 280 dollars in the ratio of 2:5

How much does Chloe receive?

..... dollars

(Total for Question 38 is 2 marks)

39 These are the times (in seconds) taken by 12 students to run a 100 m race.

| | | | | | |
|------|------|------|------|------|------|
| 12.4 | 11.9 | 13.1 | 12.6 | 12.4 | 11.4 |
| 14.0 | 13.7 | 12.2 | 12.0 | 13.5 | 12.1 |

(a) Draw an ordered stem and leaf diagram for this data.

| | | |
|----|--|--|
| 11 | | |
| 12 | | |
| 13 | | |
| 14 | | |

Key: | =

(3)

(b) Find the median time.

..... seconds

(1)

(Total for Question 39 is 4 marks)



40 Jack and Tony play 3 games of tennis.

The probability of Jack winning is 0.7

(a) What is the probability of Jack winning all 3 games?

.....
(1)

(b) What is the probability of Jack winning exactly 2 games?

.....
(2)

(Total for Question 40 is 3 marks)



41 Find the Highest Common Factor of 70, 98 and 112

.....
(Total for Question 41 is 2 marks)



42 Solve the equation

$$3(x - 5) = 2(9 - x)$$

You must show your working.

$x =$

(Total for Question 42 is 2 marks)



43 Find the first 3 terms in the sequence given by the n th term $n^2 + 2n - 1$

.....

(Total for Question 43 is 1 mark)

44 The speed of light is approximately 3×10^8 km/s.

Alpha Centauri is a red dwarf star which is approximately 4.2×10^{13} km from Earth.

How long would it take light to travel from Alpha Centauri to Earth?

Give your answer to the nearest hour.

..... hours

(Total for Question 44 is 2 marks)



45 David buys a television in the sale for 862.40 dollars

The price of the television has been reduced by 12%.

(a) Find the original price of the television.

..... dollars
(2)

(b) David invests 800 dollars at an annual rate of 3% compound interest.

How much would the investment be worth at the end of 4 years?

..... dollars
(2)

(Total for Question 45 is 4 marks)



46 Solve this equation:

$$5x^2 - 28 = 27$$

$x = \dots\dots\dots$ or $x = \dots\dots\dots$

(Total for Question 46 is 2 marks)

TOTAL FOR SECTION B IS 50 MARKS
TOTAL FOR PAPER IS 80 MARKS



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