

Write your name here

Surname

Other names

**Edexcel International
Lower Secondary
Curriculum**

Centre Number

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Candidate Number

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Mathematics

Year 9

Achievement Test

Thursday 12 June 2014 – Afternoon
Time 1 hour 20 minutes

Paper Reference

LMA01/01

You must have:

Ruler graduated in centimetres and millimetres, protractor, compasses, pen, HB pencil, eraser, calculator. Tracing paper may be used.

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.

P43715A

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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 Highest Common Factor of 36 and 60?

2

4

12

180

2 Expand $4(x - 2)$

$2x$

$4x - 2$

$4x - 6$

$4x - 8$

3 Look at this diagram.

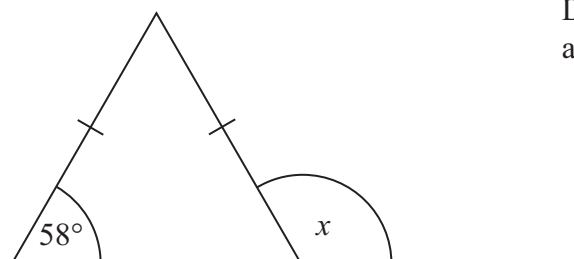


Diagram **NOT**
accurately drawn

Calculate the size of angle x .

58°

64°

122°

302°

4 What is $\frac{1}{25}$ written as a decimal?

1.25

0.04

0.25

0.4



5 Simplify $5x - 3y + 4x + 2y$

$x - y$



$x + 5y$



$9x - y$



$9x - 5y$



6 There are 20 marbles in a bag.

Eight of the marbles are red, seven are green and the rest are yellow.

One of the marbles is chosen at random.

What is the probability that the marble chosen is yellow?

$\frac{5}{20}$



$\frac{7}{20}$



$\frac{8}{20}$



$\frac{15}{20}$



7 The area of a square is 36 cm^2 .

What is the perimeter of the square?

6 cm



18 cm



24 cm



72 cm



8 What is 8.0345 written to 2 decimal places?

8.03



8.034



8.035



8.04



9 Simplify $4^8 \times 4^2$

4^4



4^6



4^{10}



4^{16}



10 S is the point (3, -2)

T is the point (5, 6)

What are the coordinates of the midpoint of the line ST?

(1, 2)

(1, 4)

(4, 2)

(4, 4)

11 This stem and leaf diagram shows the marks 15 students achieved in a spelling test.

1		1	3				
2		4	5	6			
3		3	4	6	8	8	
4		3	3	3	5		
5		0					

Key: 4 | 3 means 43

What is the median mark?

36

38

39

43

12 What is 36 written as a product of its prime factors?

$1 \times 2 \times 2 \times 3 \times 3$

$2 \times 2 \times 3 \times 3$

$2 \times 2 \times 2 \times 3$

6×6

13 The n th term of a sequence is $4 + n^2$

Work out the 5th term in the sequence.

4

14

29

81



14 Find the area of a circle with diameter 10 cm.

Use $\pi = 3.14$

15.7 cm²



31.4 cm²



78.5 cm²



314 cm²



15 What is the volume of this cuboid?

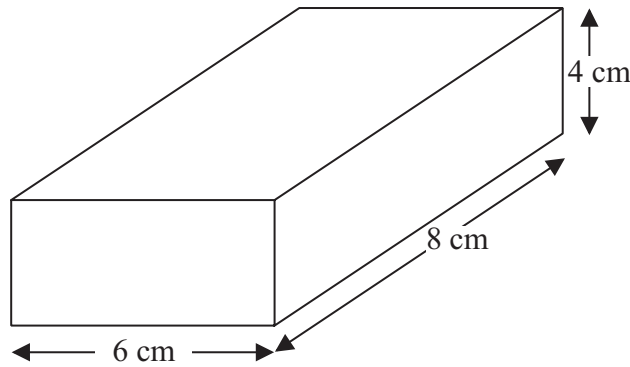


Diagram NOT accurately drawn

18 cm³



32 cm³



104 cm³



192 cm³



16 What is 64 cm² in mm² ?

0.64 mm²



6.4 mm²



640 mm²



6400 mm²



17 Here are the first four terms of an arithmetic sequence.

8 13 18 23

Which of these is an expression for the n th term?

$n + 5$



$n + 7$



$3n + 5$



$5n + 3$



18 Work out the value of $2n + m^2$ when $n = 5$ and $m = -2$

6



14



18



36



19 Find the area of this trapezium.

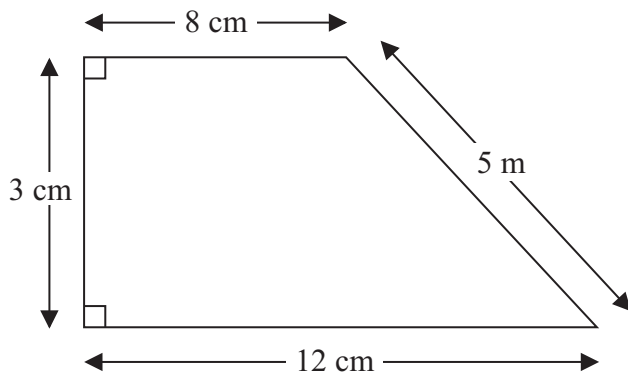


Diagram NOT accurately drawn

30 cm²

50 cm²

60 cm²

100 cm²

20 What is the reciprocal of 4?

16

2

$\frac{1}{2}$

$\frac{1}{4}$

21 The length of a path is 8.3 m correct to 1 decimal place.

What is the shortest possible length of the path?

8.249 m

8.25 m

8.29 m

8.34 m

22 What is 0.0032 written in standard form?

0.32×10^{-2}

3.2×10^{-3}

3.2×10^3

32×10^{-4}



23 Expand the brackets and simplify $(x + 6)(x + 3)$

$x^2 + 18$



$x^2 + 6x + 18$



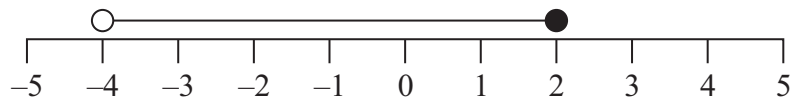
$x^2 + 9x + 9$



$x^2 + 9x + 18$



24 The diagram shows an inequality.



What is the inequality?

$-4 < x \leq 2$



$-4 < x < 2$



$-4 \leq x \leq 2$



$-4 \leq x < 2$



25 What is 346.467 rounded to 2 significant figures?

35



340



346.47



350



26 Calculate $1\frac{2}{7} \times 3\frac{1}{2}$

$3\frac{1}{7}$



$3\frac{1}{3}$



$4\frac{1}{3}$



$4\frac{1}{2}$



27 A number is multiplied by 0.85

What percentage does it decrease by?

0.15%

0.85%

15%

85%

28 Factorise $x^2 - 36$

$(x + 6)(x - 6)$

$(x - 6)^2$

$x(x - 36)$

$x(x - 6)^2$

29 Simplify $(2a^{\frac{2}{3}})^3$

$2a^2$

$6a^2$

$8a^2$

$8a^{\frac{11}{3}}$

30 Which of these lines is parallel to $y = 4x + 3$?

$y = 3x + 4$

$y = 3 - 4x$

$2y = 4x + 3$

$2y = 8x - 3$

TOTAL FOR SECTION A IS 30 MARKS



SECTION B

**Answer ALL questions.
You must show all your working.**

31 Solve the equation $4x - 3 = 18$

$x = \dots\dots\dots$

(Total for Question 31 is 2 marks)

32 Calculate the area of this shape.

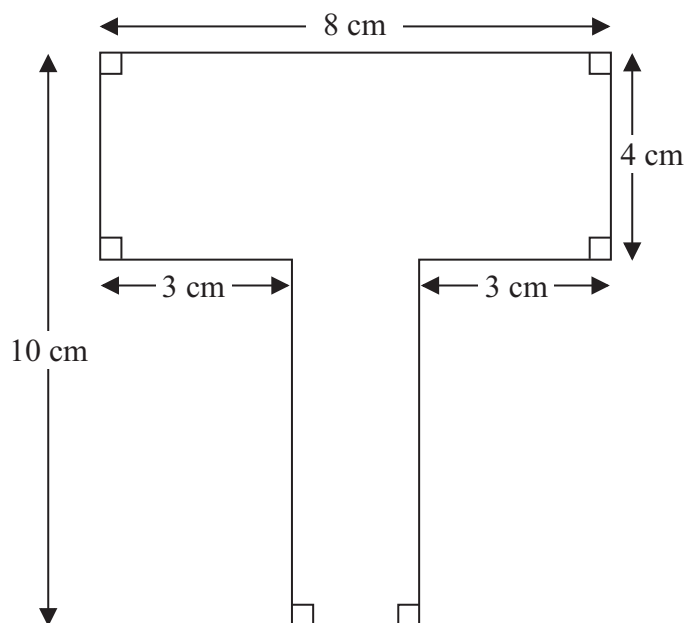


Diagram **NOT**
accurately drawn

$\dots\dots\dots \text{cm}^2$

(Total for Question 32 is 3 marks)



33 Here are the first five terms in an arithmetic sequence.

3 7 11 15 19

(a) Write an expression for the n th term.

.....
(2)

(b) Work out the 20th term.

.....
(1)

(Total for Question 33 is 3 marks)

34 The probability that Sarah will win a race is 0.6

What is the probability she does not win the race?

.....
(Total for Question 34 is 1 mark)



35 Look at this triangle

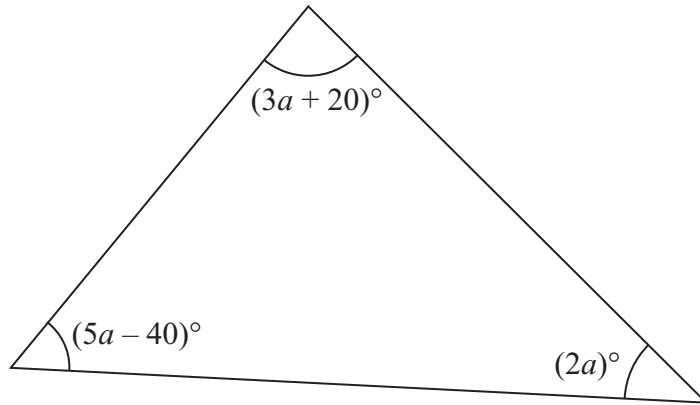


Diagram **NOT**
accurately drawn

Work out the value of a .

You must show your working.

$a = \dots\dots\dots$

(Total for Question 35 is 3 marks)



36 (a) Write $(6^5)^2$ as a single power of 6

.....
(1)

(b) Write $8^9 \div 8^3$ as a single power of 8

.....
(1)

(c) Evaluate 4^{-2}

.....
(2)

(Total for Question 36 is 4 marks)

37 (a) Factorise $5x + 30$

.....
(1)

(b) Multiply out $4x(2x - 6)$

.....
(1)

(c) Rearrange this equation to make x the subject.

$$y = x - 4$$

.....
(1)

(Total for Question 37 is 3 marks)



38 Look at this rectangle.

Calculate the angle EBD .

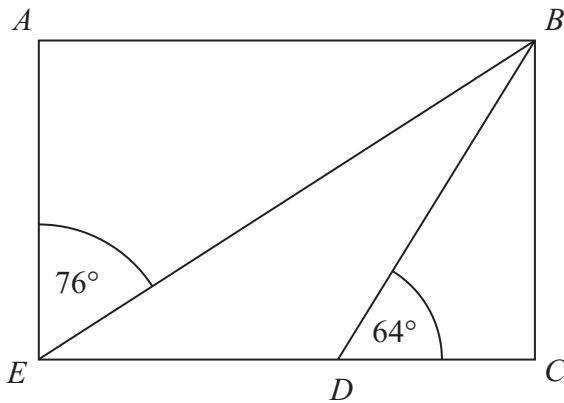


Diagram NOT
accurately drawn

.....
(Total for Question 38 is 3 marks)



39 The grouped frequency table shows the time, in minutes, it took 20 students to travel to school.

Time (m)	Frequency
$0 \leq m < 10$	2
$10 \leq m < 20$	4
$20 \leq m < 30$	4
$30 \leq m < 40$	6
$40 \leq m < 50$	4

(a) Which is the modal group?

.....
(1)

(b) Work out an estimate of the mean time.

You must show your working.

..... minutes
(3)

(Total for Question 39 is 4 marks)



40 (a) Write the number 30 000 000 in standard form.

.....
(1)

(b) Write 4×10^{-5} as an ordinary number.

.....
(1)

(c) Work out the value of $4 \times 10^{-5} \times 30\,000\,000$
Give your answer in standard form.

.....
(2)

(Total for Question 40 is 4 marks)

41 Calculate the volume of this triangular prism.

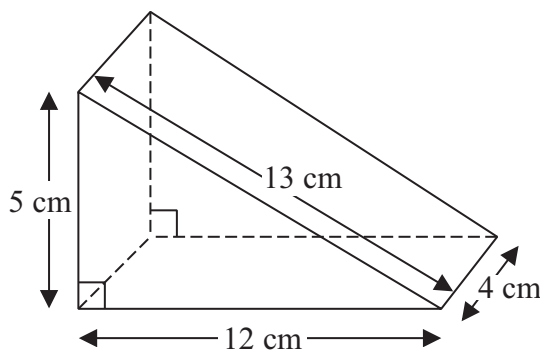


Diagram **NOT**
accurately drawn

..... cm³

(Total for Question 41 is 3 marks)



42 Five numbers have a mean of 6

Four of these numbers are given.

3	8	6	8	?
---	---	---	---	---

What is the missing number?

.....
(Total for Question 42 is 2 marks)

43 (a) By rounding each number to 1 significant figure, find an estimate for the value of

$$\frac{242}{4.2 \times 9.7}$$

You must show your working.

.....
(2)

(b) Round 0.0003982 to 2 significant figures.

.....
(1)

(Total for Question 43 is 3 marks)



44 A box contains only blue, red and green crayons.

$\frac{2}{7}$ of the crayons are blue

$\frac{1}{7}$ of the crayons are red

One crayon is chosen at random.

(a) What is the probability that a blue or red crayon is chosen?

.....
(1)

(b) What is the probability that a green crayon is chosen?

.....
(1)

(Total for Question 44 is 2 marks)



45 $ABCD$ is a rectangle.

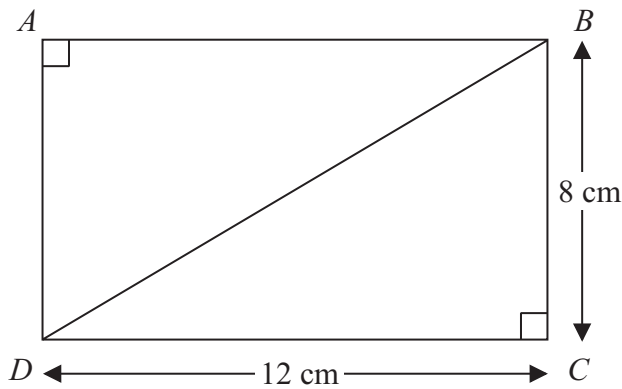


Diagram **NOT**
accurately drawn

BC is 8 cm

DC is 12 cm

Calculate the length of the diagonal BD .

Give your answer to 1 decimal place.

..... cm

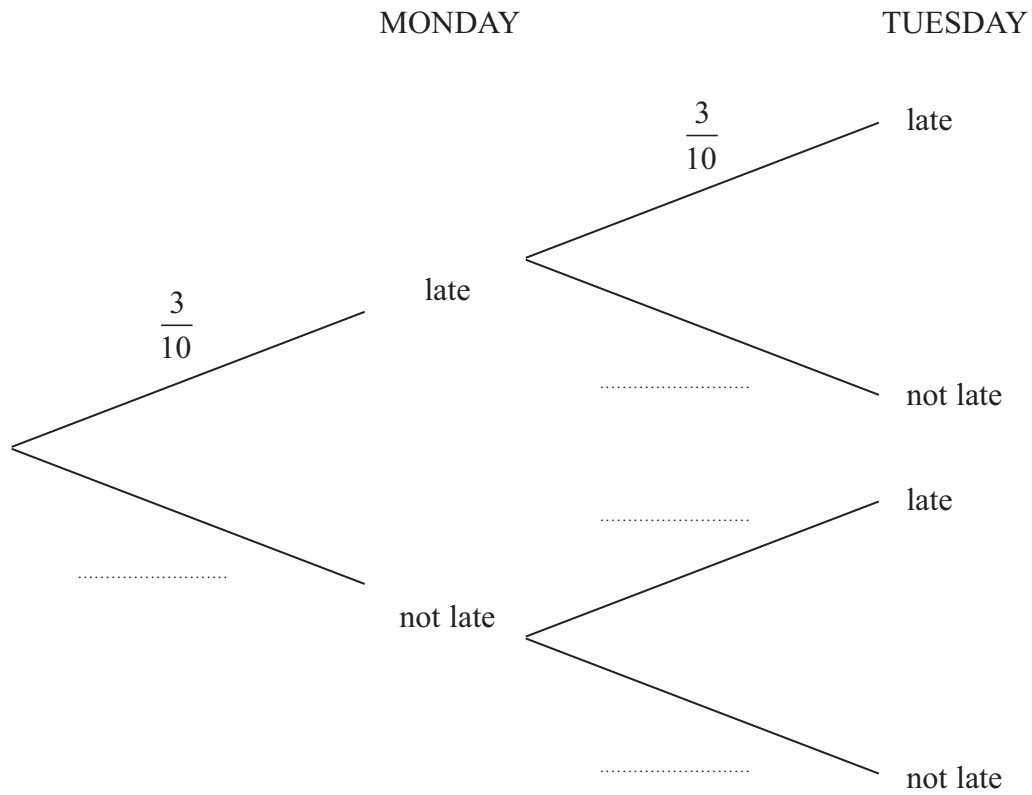
(Total for Question 45 is 3 marks)



46 Saima travels to school by train every day.

The probability that the train is late is $\frac{3}{10}$

(a) Complete the probability tree diagram for Monday and Tuesday.



(2)

(b) Calculate the probability that the train will be late on both Monday and Tuesday.

.....
(2)

(Total for Question 46 is 4 marks)



47 Look at the diagram below.

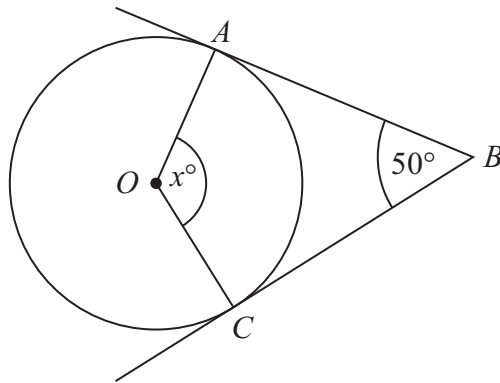


Diagram **NOT**
accurately drawn

AB and BC are tangents to the circle.
 O is the centre of the circle.

(a) What is the size of the angle OAB ?

.....
(1)

(b) Calculate the size of the angle x° .

.....
(2)

(Total for Question 47 is 3 marks)

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

