Write your name here

Surname	Other names

Edexcel International Lower Secondary Curriculum

Centre Number | | | | | |

Candidate Number | | | | |

Mathematics

Year 9
Achievement Test

Tuesday 12 June 2012 – Afternoon
Time 1 hour 20 minutes

Paper Reference
LMA01/01

You do not need any other materials.

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.

Turn over ▶

P41323A

6/4/3/3/

P 4 1 3 2 3 A 0 1 2 4

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 In one month 18 568 people visited a museum.

What is 18 568 rounded to the nearest thousand?

18 000	18 570	18 600	19 000
☒	☒	☒	☒

2 Simplify $9x - 3y + 4x + 7y$

$13x - 10y$	$13x + 4y$	$5x + 4y$	$5x + 10y$
☒	☒	☒	☒

3 What is the area of this shape?

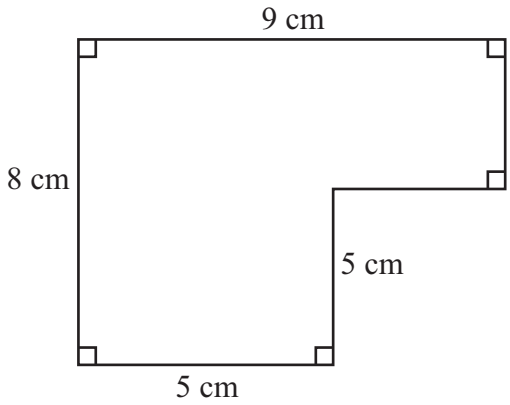


Diagram **NOT** accurately drawn

52 cm^2	67 cm^2	72 cm^2	97 cm^2
☒	☒	☒	☒

4 Paul scored these marks in his last five spelling tests

4 5 8 9 9

What is the mean of his marks?

5	7	8	9
☒	☒	☒	☒

5 What is the lowest common multiple of 15 and 20?

5	15	60	300
☒	☒	☒	☒

6 Expand $3(x + 5)$

$3x + 5$	$3x + 8$	$3x + 15$	$8x$
☒	☒	☒	☒

7

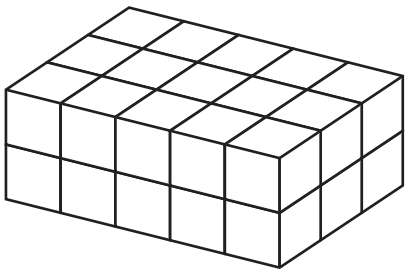


Diagram **NOT** accurately drawn

This cuboid is made from 1 cm^3 cubes. What is the volume of the cuboid?

20 cm^3	22 cm^3	30 cm^3	31 cm^3
☒	☒	☒	☒

8 Simplify $3^6 \times 3^2$

3^{12}	3^8	3^4	3^3
☒	☒	☒	☒

9 Look at this arrowhead.

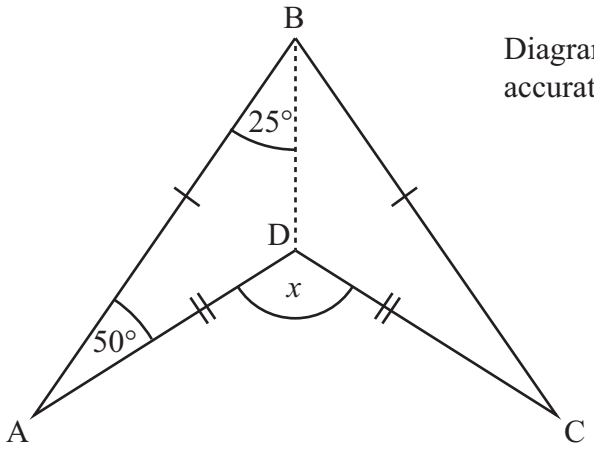


Diagram **NOT** accurately drawn

Calculate the size of angle x

75°	105°	150°	255°
☒	☒	☒	☒

10 P is the point (2, 9)

Q is the point (4, –3)

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

(1, 3)	(1, 6)	(3, 3)	(3, 6)
☒	☒	☒	☒

11 This stem and leaf diagram shows the height, in centimetres (cm), of 15 students.

14	2	6			
15	4	5	6	7	7
16	3	6	7	8	9
17	2	3			
18	1				

Key:
18 | 1 = 181 cm

What is the median height?

157 cm ☒ 163 cm ☒ 166 cm ☒ 167 cm ☒

---

12 What is 42 written as a product of its prime factors?

$1 \times 2 \times 3 \times 7$ ☒ $2 \times 3 \times 7$ ☒ 2×21 ☒ 6×7 ☒

---

13 Work out the value of $3a + b^2$ when $a = 2$ and $b = 3$

9 ☒ 11 ☒ 12 ☒ 15 ☒

---

14 Find the area of this trapezium.

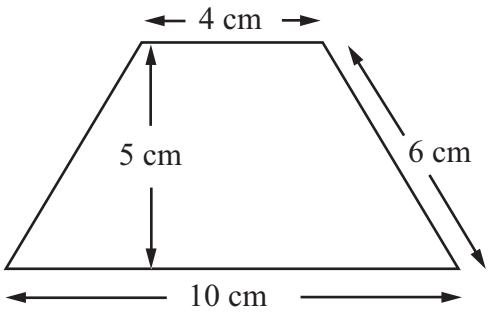


Diagram **NOT** accurately drawn

35 cm^2	42 cm^2	70 cm^2	84 cm^2
☒	☒	☒	☒

---

15 Calculate $\dfrac{11.82+15.66}{3.1-2.7}$

1.6	6.2	51.0	68.7
☒	☒	☒	☒

---

16 The nth term of a sequence is $5 + n^2$
Work out the 8th term of the sequence.

13	21	69	169
☒	☒	☒	☒

---

17 Find the area of a circle with diameter 6 cm.

Use $\pi = 3.14$

18.84 cm^2	28.26 cm^2	37.68 cm^2	113.04 cm^2
☒	☒	☒	☒

---

18 Here are the first four terms of an arithmetic sequence

6 10 14 18

An expression for the nth term of the sequence is

$n + 4$	$n + 5$	$2n + 4$	$4n + 2$
☒	☒	☒	☒

19 What is the volume of this cuboid?

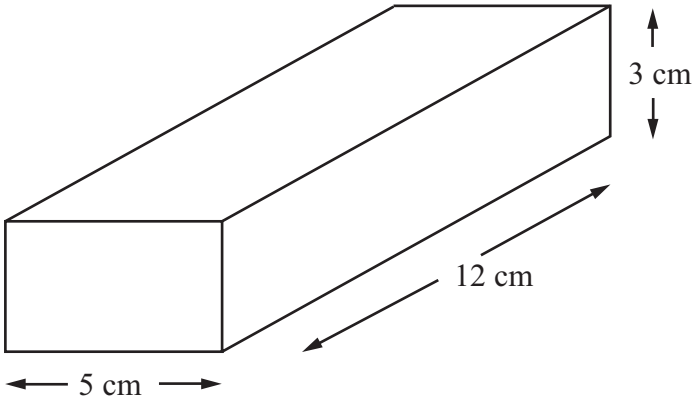


Diagram **NOT** accurately drawn

20 cm^3	36 cm^3	96 cm^3	180 cm^3
☒	☒	☒	☒

20 What is 279.253 rounded to two significant figures?

28	270	279.25	280
☒	☒	☒	☒

21 A number is multiplied by 0.95
What does it decrease by?

0.5 %	0.95 %	5 %	95 %
☒	☒	☒	☒

22 The length of a piece of wood is 5.4 cm correct to one decimal place.
What is the smallest possible length of the wood?

5.349 cm	5.35 cm	5.39 cm	5.44 cm
☒	☒	☒	☒

23 One of these sets of numbers is a **Pythagorean triple**.
Which one?

6, 8, 10	7, 8, 9	3, 4, 25	4, 5, 9
☒	☒	☒	☒

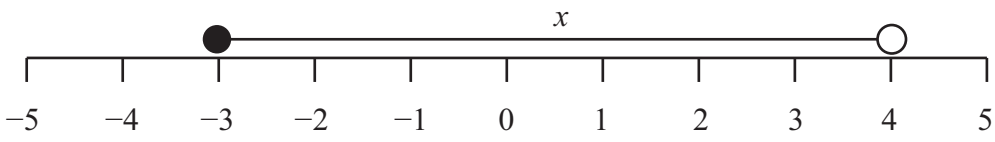
24 What is 0.00026 written in standard form?

0.26×10^{5}	2.6×10^{-4}	2.6×10^{4}	26×10^{-5}
☒	☒	☒	☒

25 Expand the brackets and simplify $(x + 3)(x + 2)$

$x^2 + 3x + 6$	$x^2 + 5x + 5$	$x^2 + 5x + 6$	$x^2 + 6$
☒	☒	☒	☒

26 This diagram represents an inequality.



What is the inequality?

$-3 \leqslant x \leqslant 4$	$-3 < x < 4$	$-3 < x \leqslant 4$	$-3 \leqslant x < 4$
☒	☒	☒	☒

27 Calculate $2\frac{1}{2} \times 1\frac{3}{5}$

$2\frac{3}{10}$ ☒ $2\frac{4}{7}$ ☒ $3\frac{4}{7}$ ☒ 4 ☒

28 Factorise $x^2 - 49$

$(x + 7)(x - 7)$ ☒ $(x - 7)^2$ ☒ $x(x - 49)$ ☒ $x(x - 7)^2$ ☒

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

$3a^3$ ☒ $6a^3$ ☒ $9a^3$ ☒ $9a^{\frac{7}{2}}$ ☒

30 One of these lines is parallel to $y = 3x + 5$
Which one?

$2y = 3x + 1$ ☒ $y = 4 - 3x$ ☒ $y = 6x + 5$ ☒ $2y = 6x - 3$ ☒

TOTAL FOR SECTION A IS 30 MARKS

SECTION B

Answer ALL questions.
You must show all your working.

31 Solve this equation $6x + 41 = 59$

Show your working clearly.

.....

(Total for Question 31 is 2 marks)

32 This square has an area of 25 cm^2.

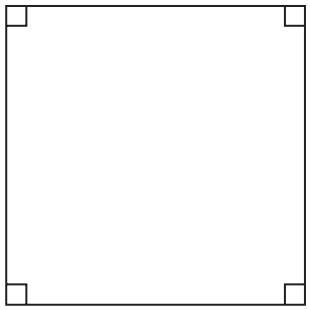


Diagram **NOT** accurately drawn

Calculate the perimeter of the square.

.....

(Total for Question 32 is 2 marks)

33 Here are the shoe sizes of 7 students.

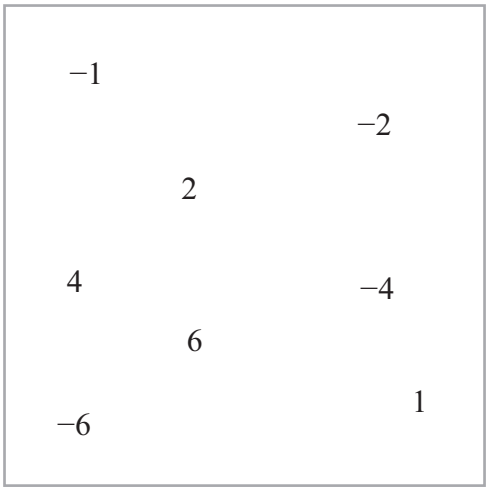
38 36 40 35 41 39 41

What is the median shoe size?

.....

(Total for Question 33 is 1 mark)

34 Look at these numbers.



Choose numbers from the box above to make these calculations correct.

(a) ☐ + ☐ = –2

(b) ☐ – ☐ = –4

(Total for Question 34 is 2 marks)

35 Look at this triangle.

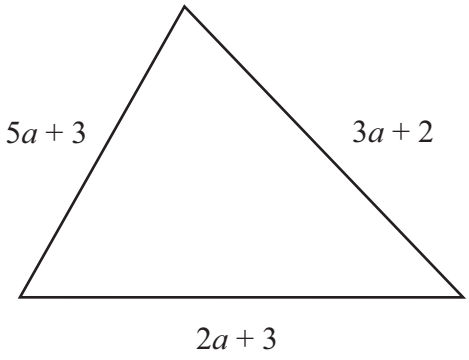


Diagram **NOT** accurately drawn

The perimeter of the triangle is 48 cm.

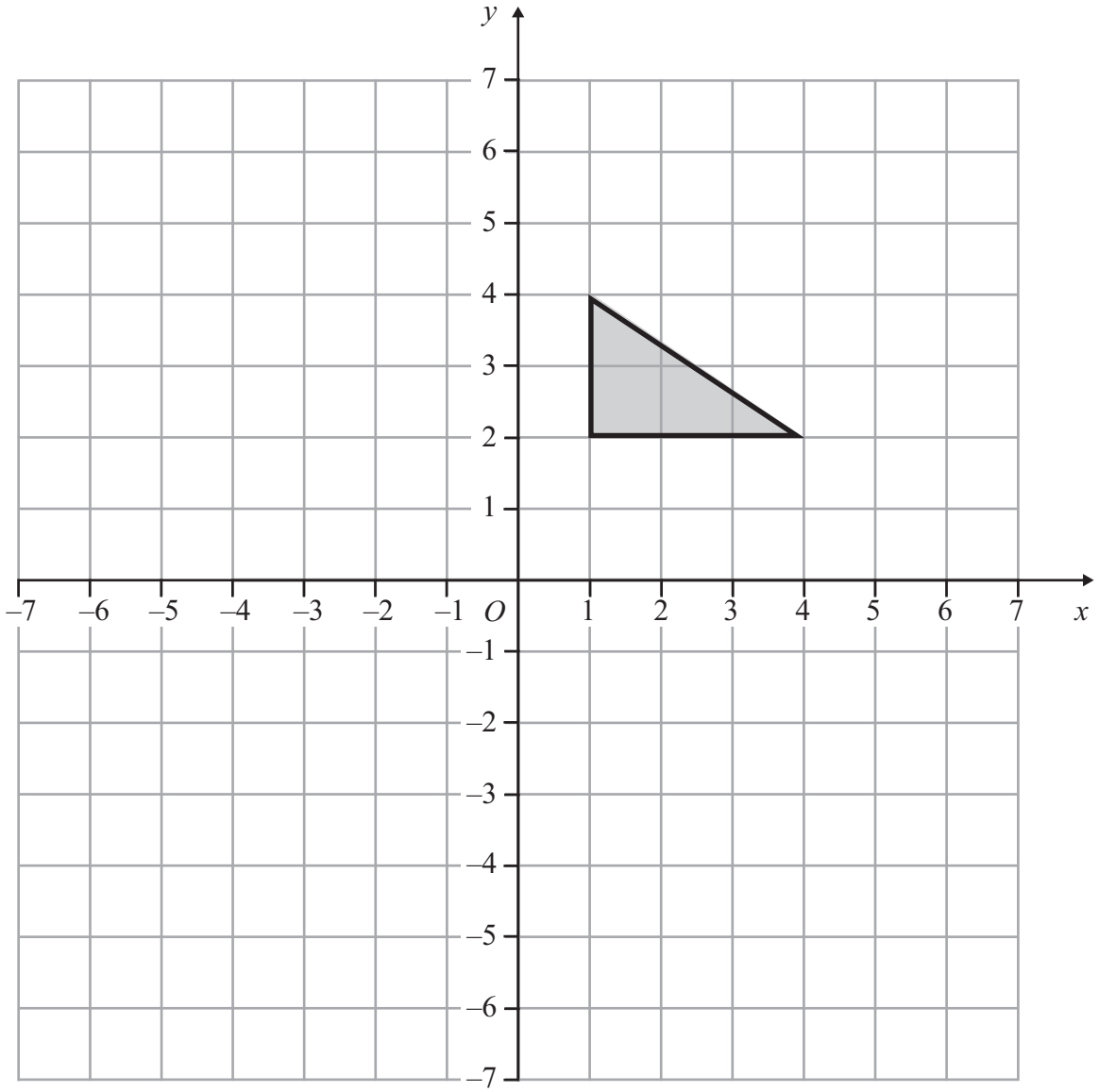
Find the value of a

Show your working clearly.

.....

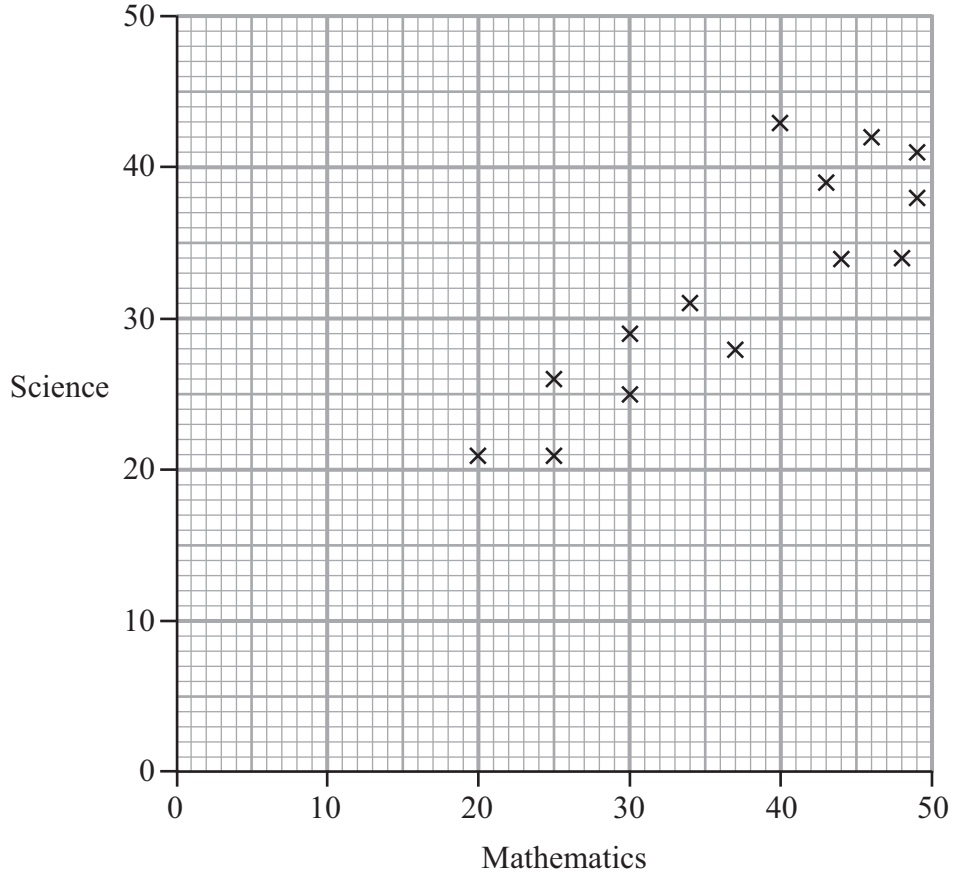
(Total for Question 35 is 3 marks)

36 Rotate the triangle **90° clockwise** about the point (0, 2)
Draw the triangle in its new position.



(Total for Question 36 is 2 marks)

37 The scatter graph shows the marks of 14 students in their Mathematics and Science tests.



(a) Describe the correlation between the Mathematics and Science marks.

.....

(1)

(b) The table below shows the marks of two more students.

	Mathematics test	Science test
Peter	40	38
Justin	35	33

Plot these marks on the scatter graph.

(2)

(c) James scored 32 in his Mathematics test. Estimate his Science mark.

.....

(1)

(Total for Question 37 is 4 marks)

38 (a) Multiply out this expression. Give your answer as simply as possible.

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

.....

(2)

(b) Factorise this expression $4x + 6$

.....

(1)

(Total for Question 38 is 3 marks)

39 In a sale, the price of a computer is reduced by 15%.

(a) What percentage of the original price is the sale price?

..... %

(1)

(b) The computer originally cost 600 euros.
What is the sale price of the computer?

..... euros

(1)

(Total for Question 39 is 2 marks)

40 (a) Write 380 000 as a number in standard form.

.....

(1)

(b) Write 7.4×10^{-4} as an ordinary number.

.....

(1)

(c) Work out $(4.5 \times 10^{7}) \times (1.3 \times 10^{-5})$. Write your answer as an ordinary number.

.....

(1)

(Total for Question 40 is 3 marks)

41

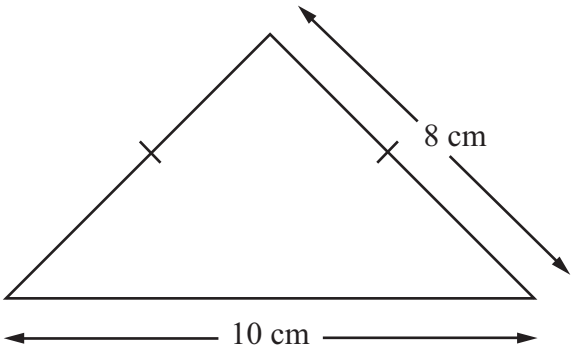


Diagram **NOT** accurately drawn

Find the height of the isosceles triangle.

Give your answer correct to 3 significant figures.

.....cm

(Total for Question 41 is 3 marks)

42 (a) Find the value of a

$3^6 \times 3^a = 3^{18}$

.....

(1)

(b) Find the value of b

$3^{12} \div 3^4 = 3^b$

.....

(1)

(Total for Question 42 is 2 marks)

43 This grouped frequency table shows the amount of time it took 20 swimmers to swim 50 m.

Time (t seconds)	Frequency
$40 \leqslant t < 50$	1
$50 \leqslant t < 60$	4
$60 \leqslant t < 70$	9
$70 \leqslant t < 80$	3
$80 \leqslant t < 90$	3

Work out an estimate of the mean time.

.....seconds

(Total for Question 43 is 3 marks)

44 The diagram shows a prism.

The cross-section of the prism is in the shape of a semi-circle.

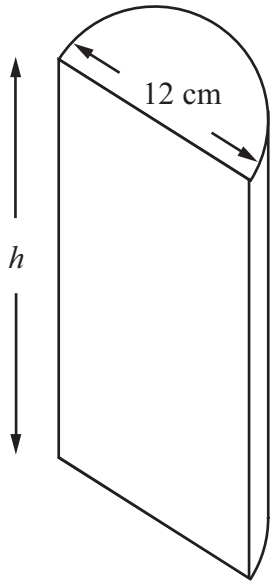


Diagram **NOT** accurately drawn

(a) The diameter of the semi-circle is 12 cm.
Calculate the area of the semi-circle.
Write your answer to 2 significant figures.

..... cm^2

(3)

(b) The volume of the prism is 570 cm^3.
Calculate the height of the prism.

..... cm

(1)

(Total for Question 44 is 4 marks)

45 A bag of sweets contains only chocolates, mints and toffees.

$\frac{1}{5}$ of the sweets are chocolates.

$\frac{1}{3}$ of the sweets are toffee.

One sweet is chosen at random.

(a) What is the probability that it is a chocolate or a toffee?

.....

(1)

(b) What is the probability that it is a mint?

.....

(1)

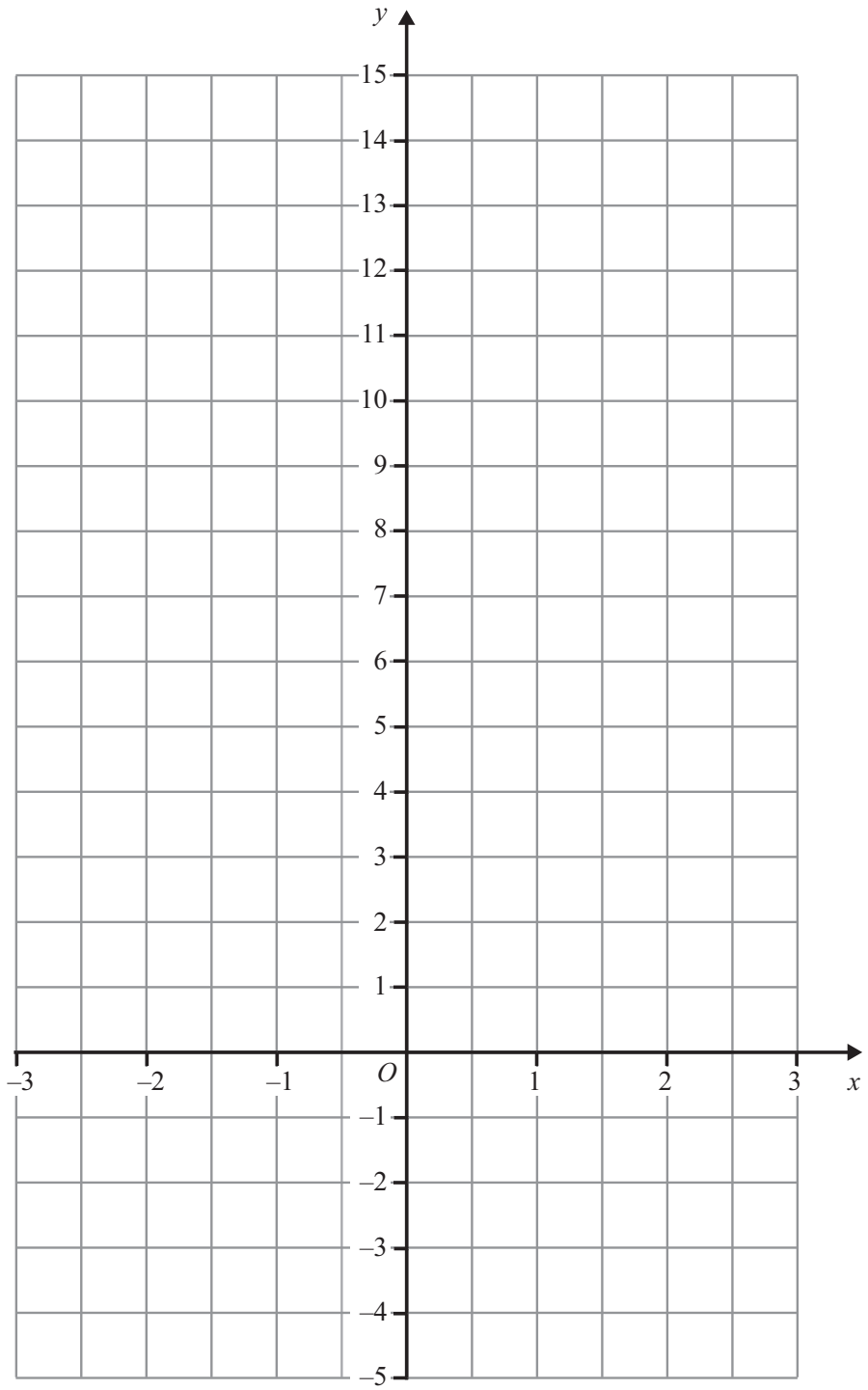
(Total for Question 45 is 2 marks)

46 (a) Complete this table of values for $y = 2x^2 - 4$

x	–2	–1	0	1	2	3
y	4			–2	4	

(2)

(b) Draw the graph of $y = 2x^2 - 4$ on the grid below.



(2)

(c) Use your graph to find a possible value of x where $y = 3$

.....

(1)

(Total for Question 46 is 5 marks)

47 Solve the simultaneous equations. Show your working clearly.

$2x + y = 10$

$4x - y = 8$

.....

(Total for Question 47 is 3 marks)

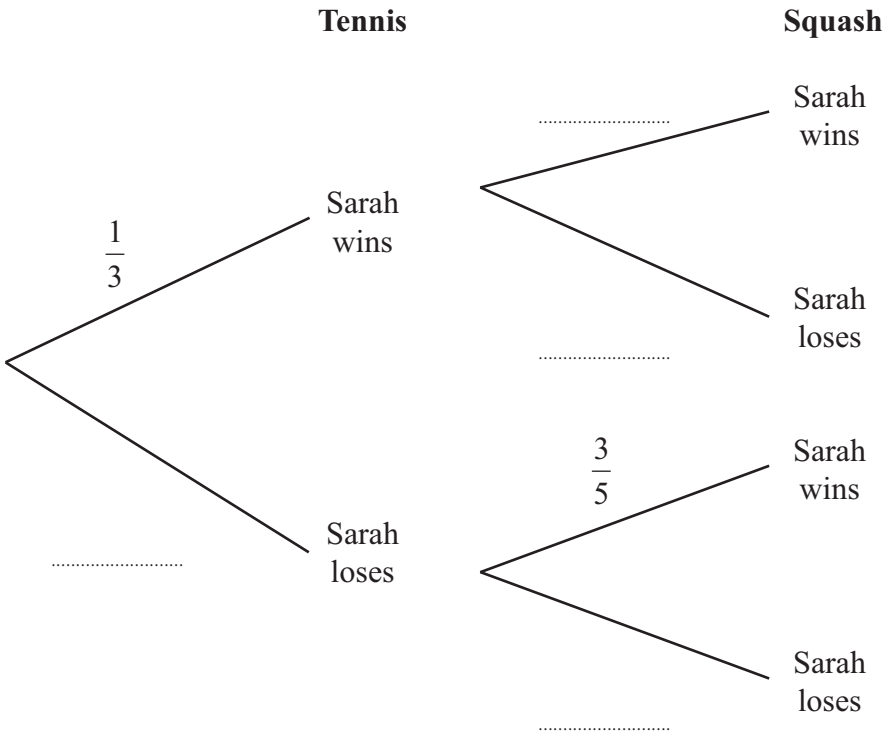
Please turn over

48 Sarah plays a game of tennis and a game of squash.

The probability she wins at tennis is $\frac{1}{3}$

The probability she wins at squash is $\frac{3}{5}$

(a) Complete the probability tree diagram.



(2)

(b) Calculate the probability that Sarah wins both games.

.....

(2)

(Total for Question 48 is 4 marks)

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