edexcel

GCSE Mathematics Practice Tests: Set 5

MR. LEWIS

Paper 1F (Non-calculator)

Time: 1 hour 30 minutes

Solutions

You should have: Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser.

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 must not be used.**
- Diagrams are NOT accurately drawn, unless otherwise indicated.
- You must **show all your working out.**

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

Answer ALL questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

1. Here are the first four terms of a number sequence.

23 20 17 14

-3 -3 -3

(i) Write down the next term of the sequence.

11

.....

(ii) Explain how you got your answer.

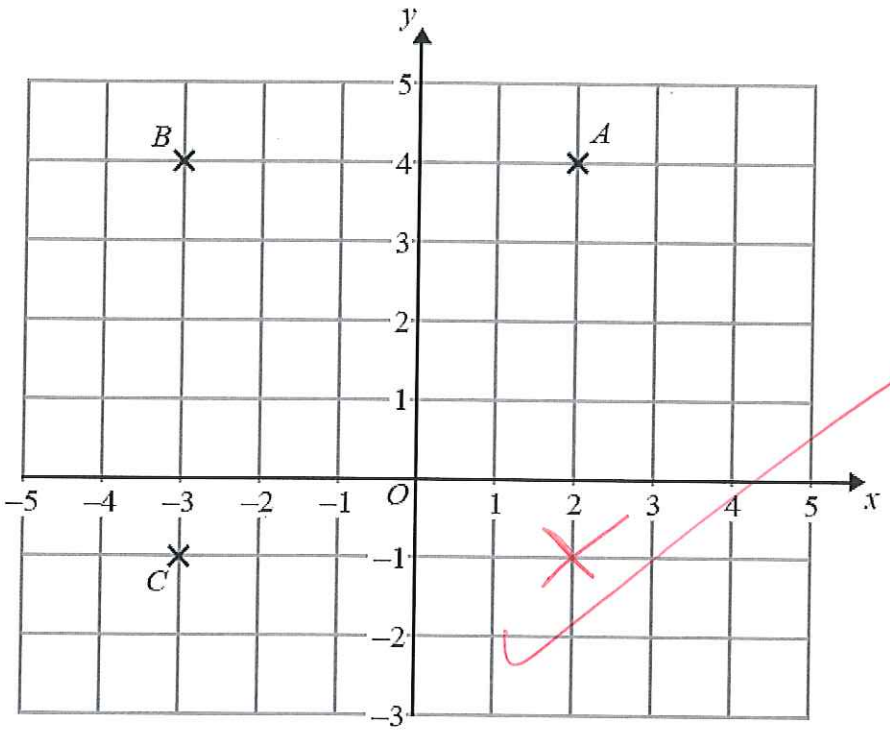
Take away 3 from previous term

.....

.....

(Total 2 marks)

2.



(a) Write down the coordinates of the point

(i) A

(2 , 4)

(ii) C

(−3 , −1)

(2)

$ABCD$ is a square.

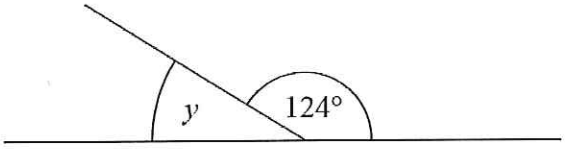
(b) On the grid, mark with a cross (×) the point D so that $ABCD$ is a square.

(1)

(Total 3 marks)

3.

Diagram **NOT** accurately drawn



(*a*) (i) Work out the size of the angle marked *y*.

56 °

(ii) Give a reason for your answer.

ANGLES ON A STRAIGHT LINE ADD UP TO 180°

(2)

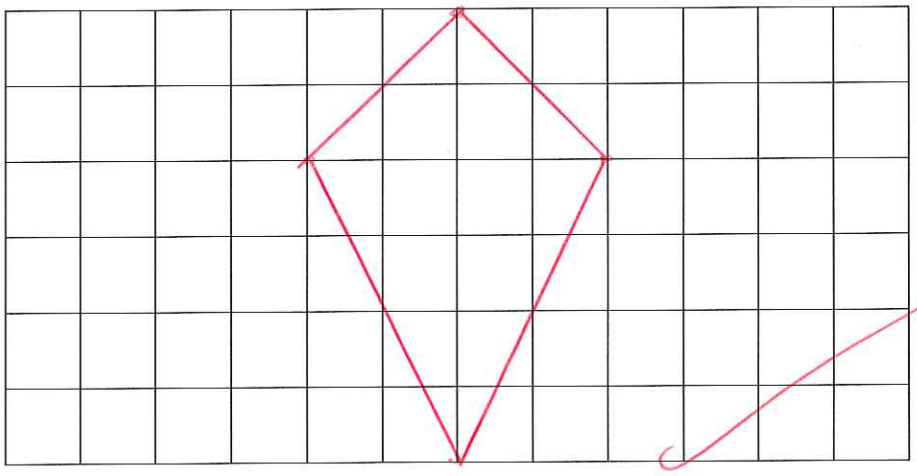
A quadrilateral has four angles.
Each angle is 90°

(*b*) Write down the mathematical name of this quadrilateral.

SQUARE or RECTANGLE

(1)

(*c*) On the grid of centimetre squares, draw a kite.



(1)

(Total 4 marks)

4. (*a*) Work out 3×-7

-21

.....

(1)

(*b*) Work out $3 \times (2 + 7)$

3×9

27

.....

(1)

(Total 2 marks)

---

5. Here is a list of numbers.

4 5 8 9 12

(*c*) From the list, write down the prime number.

5

.....

(1)

(*d*) Write the ratio 2 : 6 in its simplest form.

1:3

.....

(1)

(Total 2 marks)

---

6. Jack is 1.78 m tall.
Amy is 5 cm taller than Jack.

How tall is Amy?

1.78m = 178cm
+ 5cm.
183 cm

1.83m

.....

(Total 2 marks)

---

7. (a) Write down the value of $\sqrt{81}$

9

.....

(1)

(b) Work out the value of $5^2 + 2^3$

5×5 + 2×2×2

25 + 8

33

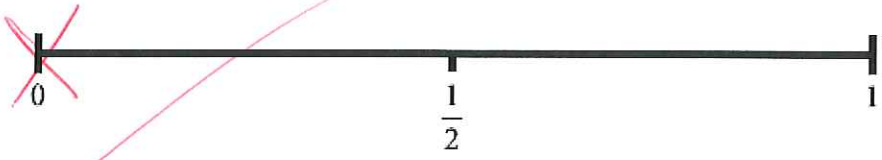
.....

(2)

(Total 3 marks)

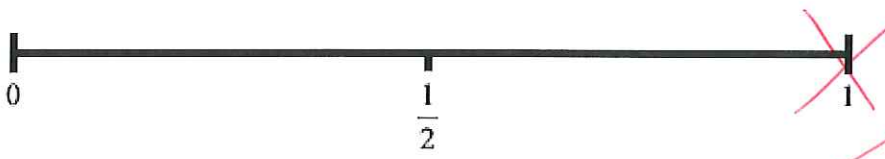
---

8. (a) On the probability scale below, mark with a cross (×) the probability that a boy will grow to a height of 5 metres.



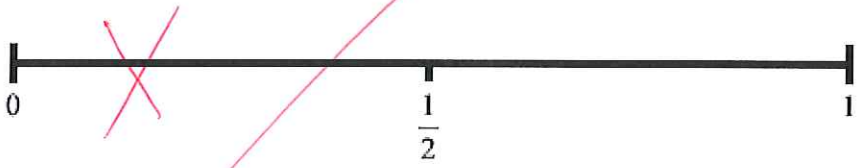
(1)

(b) On the probability scale below, mark with a cross (×) the probability that the sun will rise tomorrow.



(1)

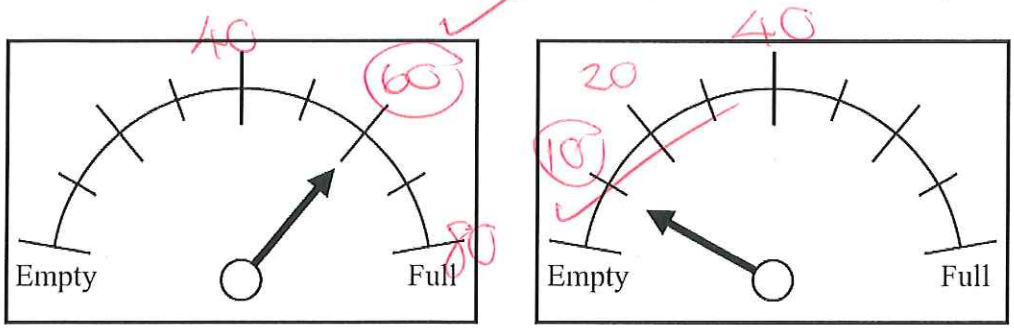
(c) On the probability scale below, mark with a cross (×) the probability that you will get a 6 when you roll a fair dice.



(1)

(Total 3 marks)

9. The diagram shows a car fuel gauge at the start of a journey and at the end of the journey.



Start **End**

There are 80 litres of fuel in the fuel tank when it is full.

(*a*) Work out how many litres of fuel the car used on this journey.

WAS 60 −
NOW 10
50

50

..... litres
(3)

On a different journey, the car went 180 kilometres.
The car went 15 kilometres for each litre of fuel used.

(*b*) How many litres of fuel did the car use?

180 ÷ 15

180
15

12
15) 180

12

..... litres
(2)

(Total 5 marks)

10. The stem and leaf diagram shows some information about the speeds of 25 cars.

2	9								
3	1	3	5	6	7	8	8	9	
4	2	3	3	4	5	6	8	8	9	9
5	1	2	4	5	6				
6	0								

Key:

2 | 9 means 29 miles per hour

(a) How many of the 25 cars had a speed of more than 50 miles per hour?

6

..... **(1)**

(b) Find the median speed.

$\frac{25+1}{2} = 13^{TH}$ VALUE

44

..... miles per hour **(1)**

(c) Work out the range of the speeds.

60 − 29

31

..... miles per hour **(2)**

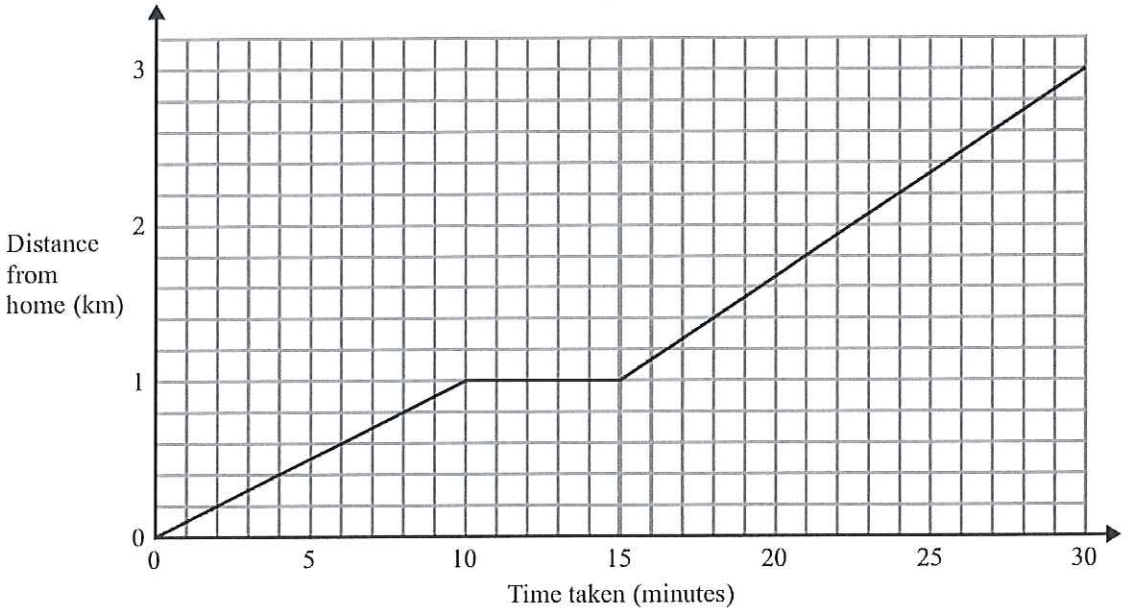
(Total 4 marks)

11. On Monday, Holly walked from her home to school.
She stopped at her friend's house on the way to school.

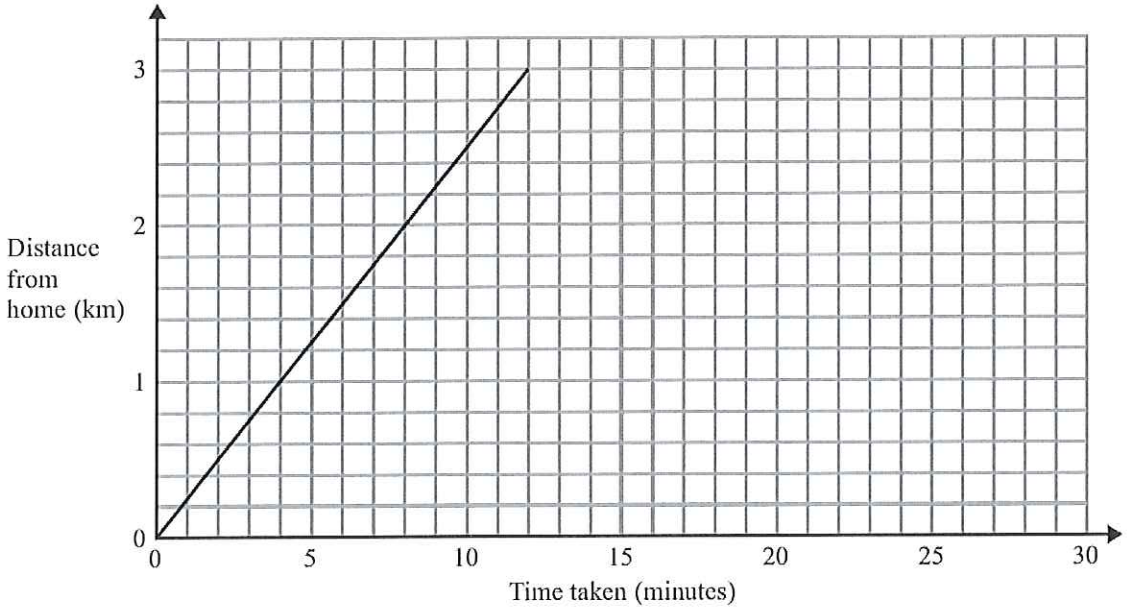
On Tuesday, Holly cycled from her home to school.

The travel graphs show Holly's journey on Monday and on Tuesday.

Monday



Tuesday



(*a*) Write down the distance from Holly's home to school.

3 ✓

..... km

(1)

(*b*) Write down how long Holly stopped at her friend's house on Monday.

5 ✓

..... minutes

(1)

Holly took less time to get to school on Tuesday than on Monday.

(*c*) How many minutes less?

30 − 12 ✓

18 ✓

..... minutes

(2)

(Total 4 marks)

---

12. There are 540 workers in a factory.

240 of the workers are female.

15% of **male** workers are more than 50 years of age.

Work out the number of male workers that are more than 50 years of age.

540 − 240 = 300 MALE ✓

10% = 30 +

5% = 15

15% = 45 ✓

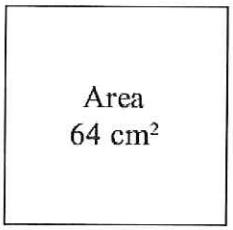
✓

45

.....

(Total 3 marks)

13. Here is a square.



The area of the square is 64 cm^2.

(a) Work out the length of one side of the square.

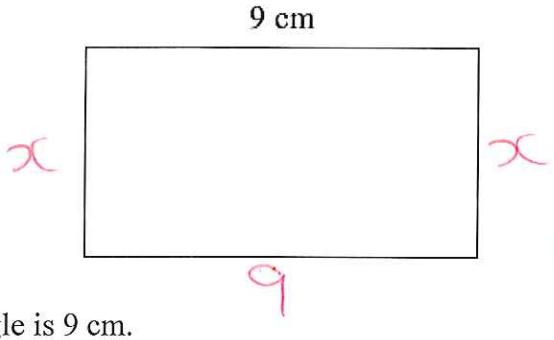
$\sqrt{64} =$

8

..... cm

(1)

Here is a rectangle.



The length of the rectangle is 9 cm.
The perimeter of the rectangle is 31 cm.

(b) Work out the width of the rectangle.

$x + 9 + x + 9 = 31$

$2x + 18 = 31$

$2x = 13$

$x = 6\frac{1}{2}$

$6\frac{1}{2}$ cm

.....

(4)

(Total 5 marks)

14. (*a*) Work out $\frac{1}{7} \times \frac{2}{3}$

$\frac{2}{21}$ ✓

.....

(1)

(*b*) Work out $\frac{3}{5} - \frac{1}{3}$

$\times 3$ $\times 5$

$\frac{9}{15} - \frac{5}{15}$ ✓

$\frac{4}{15}$ ✓

.....

(2)

(Total 3 marks)

15. Here are the ingredients needed to make 12 shortcakes.

Shortcakes	
Makes **12** shortcakes	
50 g	of sugar
200 g	of butter
200 g	of flour
10 m*l*	of milk

Liz makes some shortcakes.
She uses 25 m*l* of milk.

(a) How many shortcakes does Liz make?

MILK = 10 + 10 + 5 = 25.
Shortcakes ↓ ↓ ↓
12 + 12 + 6 =

30

.....

(2)

Robert has
500 g of sugar
1000 g of butter
1000 g of flour
500 m*l* of milk

(b) Work out the greatest number of shortcakes Robert can make.

Sugar = 500 ÷ 50 = 10.
butter = 1000 ÷ 200 = 5
flour = 1000 ÷ 200 = 5
Milk = 500 ÷ 10 = 50.

MOST = 5 lots of 12
= 5 × 12

60

.....

(2)

(Total 4 marks)

16. The diagram shows a triangle.

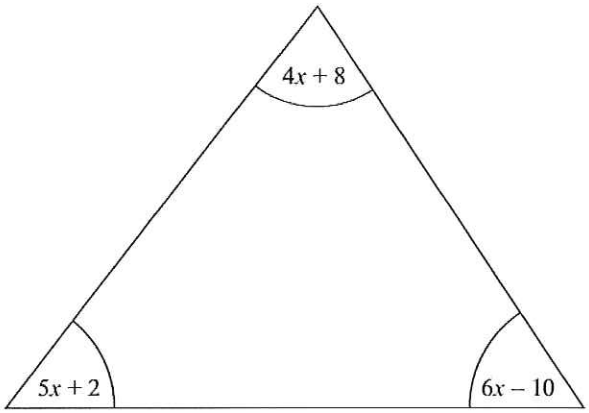


Diagram **NOT** accurately drawn

All the angles are measured in degrees.
Show that the triangle is isosceles.

$4x + 8 + 5x + 2 + 6x - 10 = 180$ ✓

$15x = 180$ ✓

$x = 12$ ✓

$5x + 2 = 62^\circ$

$6x - 10 = 62^\circ$

$4x + 8 = 56^\circ$

✓ Two angles are same

So an isosceles triangle ✓

(Total 5 marks)

17. There are red beads, green beads, blue beads and yellow beads in a bag.
Oscar is going to take at random a bead from the bag.

The table shows the probabilities that Oscar will take a red bead or a green bead.

Colour	**Red**	**Green**	**Blue**	**Yellow**
Probability	0.5	0.2		

It is equally likely that Oscar will take a blue bead or will take a yellow bead.

Work out the probability that Oscar will take a blue bead.

$0.5 + 0.2 = 0.7$

$1 - 0.7 = 0.3$

$0.3 \div 2 =$

$(0.30 \div 2)$

0.15

.....

(Total 3 marks)

18. Milk is sold in two sizes of bottle.

A 4 pint bottle of milk costs £1.18.
A 6 pint bottle of milk costs £1.74.

Which bottle of milk is the best value for money?
You must show all your working.

4 PINT

$$4\overline{)1.18}\quad 0.295$$

6 PINTS.

$$6\overline{)1.74}\quad 0.29$$

0.29 is less than 0.295

So 6 PINT BOTTLE better value for money

(Total 3 marks)

19. 5 schools sent some students to a conference.

One of the schools sent both boys and girls.
This school sent 16 boys.
The ratio of the number of boys it sent to the number of girls it sent was 1 : 2

The other 4 schools sent only girls.
Each of the 5 schools sent the same number of students.

Work out the total number of students sent to the conference by these 5 schools.

BOYS : GIRLS
1 : 2
×16 ×16
16 : 32

16 + 32 = 48 students

48
× 5
240
4

240

.....

(Total 4 marks)

20. (a) Find the Highest Common Factor (HCF) of 12 and 20

12
1 × 12
2 × 6
3 × 4

20.
1 × 20
2 × 10
4 × 5

4

.....

(2)

(b) Find the Lowest Common Multiple (LCM) of 32 and 48

32, 64, 96, 128

48, 96

96

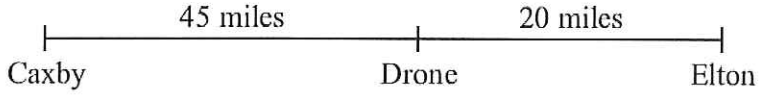
.....

(2)

(Total 4 marks)

---

21. The distance from Caxby to Drone is 45 miles.
The distance from Drone to Elton is 20 miles.



Colin drives from Caxby to Drone.
Then he drives from Drone to Elton.

Colin drives from Caxby to Drone at an average speed of 30 mph.
He drives from Drone to Elton at an average speed of 40 mph.

Work out Colin's average speed for the whole journey from Caxby to Elton.

CAXBY → DRONE
45 miles.
30 mph.
So 1½ hours.

DRONE → ELTON
20 miles
40 mph.
So ½ hour.

SPEED = TOTAL DISTANCE / TOTAL TIME
= 45+20 / 1½ + ½ = 65 / 2

32½ ..... mph

(Total 3 marks)

---

22. (*a*) Factorise $x^2 - 49$

$x^2 - 7^2$

Difference between 2 squares

$(x-7)(x+7)$ .....

(1)

(*b*) Expand and simplify $(2y + 7)(y - 3)$

$2y^2 - 6y + 7y - 21$

$2y^2 + y - 21$ .....

(2)

(Total 3 marks)

---

23. (a) Work out the value of $(6 \times 10^8) \times (4 \times 10^7)$

Give your answer in standard form.

$6 \times 10^8 \times 4 \times 10^7$

$6 \times 4 \times 10^8 \times 10^7$

24×10^{15}

$2.4 \times 10 \times 10^{15}$

2.4×10^{16}

.....

(2)

(b) Work out the value of $(6 \times 10^8) + (4 \times 10^7)$

Give your answer in standard form.

$6 \times 10^8 = 600\,000\,000.$

$4 \times 10^7 = 40\,000\,000.$ +

$640\,000\,000.$

6.4×10^8

.....

(2)

(Total 4 marks)

---

24. Sam rolls a fair dice 150 times.
Work out an estimate for the number of times the dice will land on 4

$\text{Prob}(4) = \frac{1}{6}$

$150 \times \frac{1}{6} = \frac{150}{6}$

$6 \overline{)150}$ $= 25$

25

.....

(Total 2 marks)

TOTAL FOR PAPER IS 80 MARKS