ANSWERS

Write your name here

Surname		Other names	

**Pearson Edexcel
Level 1/Level 2 GCSE (9 - 1)**

Centre Number

Candidate Number

Mathematics
Paper 2 (Calculator)

Foundation Tier

Mock Set 1 – Autumn 2016
Time: 1 hour 30 minutes

Paper Reference
1MA1/2F

You must have: Ruler graduated in centimetres and millimetres, protractor, pair of 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 may be used.**
- If your calculator does not have a π button, take the value of π to be 3.142 unless the question instructs otherwise.
- 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.

Turn over ▷

Answer ALL questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

1   Work out 1.7^3
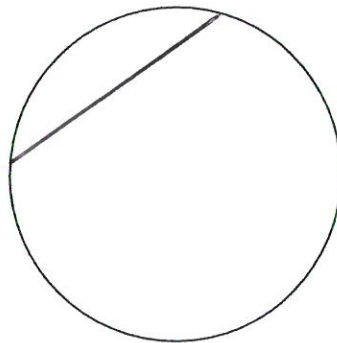
4.913

(Total for Question 1 is 1 mark)

2   There are only red sweets and yellow sweets in a bag.
$\dfrac{2}{5}$ of the sweets are red.

Write down the ratio of red sweets to yellow sweets.

2 : 3

(Total for Question 2 is 1 mark)

3   Draw a chord of this circle.

(Total for Question 3 is 1 mark)

4 On the grid, complete the diagram of a parallelogram.
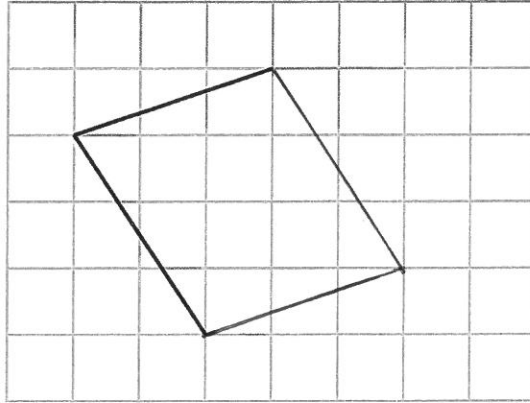
(Total for Question 4 is 1 mark)

5 A bowl contains

1 apple
1 banana
1 orange
and 1 peach

Jess takes 2 pieces of fruit from the bowl.

Write down all the possible combinations of fruit that Jess can take.

A,B   A,O   A,P   B,O   B,P   O,P

(Total for Question 5 is 2 marks)

6 The first term of a sequence of numbers is 18
  The term-to-term rule for this sequence is "add 6"

  (a) Is 603 a term of the sequence?
      You must explain your answer.

  NO — ALL TERMS ARE EVEN AND 603 IS ODD

  (1)

  (b) Rizvi says,

                    "No terms of the sequence are multiples of 7"

      Give an example to show Rizvi is wrong.

                                                        42

  (1)

  (Total for Question 6 is 2 marks)
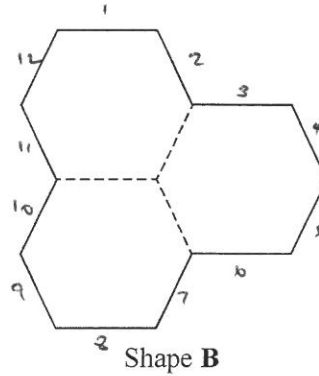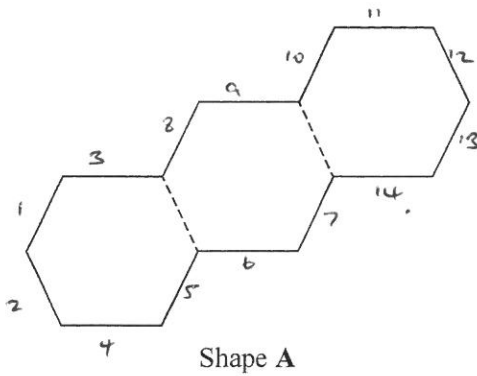
7 Here is a regular hexagon.
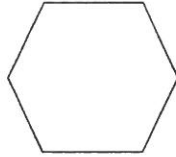
There are six identical hexagons.
Three of the hexagons are joined to make shape **A**.
The other three hexagons are joined to make shape **B**.

Shape **A**

Shape **B**

Which shape has the greater perimeter, shape **A** or shape **B**?
You must show how you get your answer.

A : 14

B : 12

∴ A HAS GREATER PERIMETER,

(Total for Question 7 is 2 marks)

8 A road map has a scale of 1 : 50 000
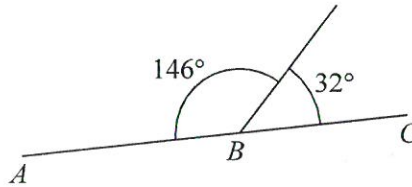The length of a road on the map is 8.5 cm.

Work out the length of the real road in kilometres.

$1 : 50000$

$8.5 \quad 425,000 \overset{2 \times 8.5}{}$

$\dfrac{425,000}{100 \times 1000}$

......**4.25**...... km

(Total for Question 8 is 3 marks)

9

Tom says,

"*ABC* **cannot** be a straight line."

Explain why Tom is correct.

......$146 + 32 = 178$ BUT ANGLES ON A......

......STRAIGHT LINE ADD UP TO $180°$......

(Total for Question 9 is 2 marks)

10 Uzma is planning a party for 120 children.
She is going to give every child a toy.

A pack of 8 toys costs £4.35

Work out how much Uzma will have to pay for the toys.

$\dfrac{120}{8} = 15$

15×4.35

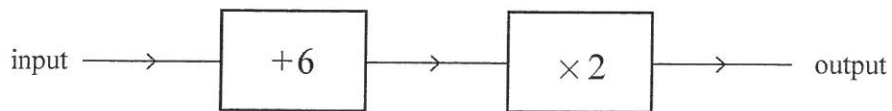£......**65.25**......

(Total for Question 10 is 3 marks)

11 Daisy thinks of a whole number.
She multiplies the number by 3
Daisy's answer is 34

(a) Explain how you know Daisy's answer is wrong.

34 ÷ 3   IS   NOT   A   WHOLE   NUMBER.

(1)

Here is a number machine.

input $\longrightarrow$ $\boxed{+6}$ $\longrightarrow$ $\boxed{\times 2}$ $\longrightarrow$ output

Abbie says that when the output is 36 the input is 60

Here is her working.

$$36 - 6 = 30$$
$$30 \times 2 = 60$$

Abbie is wrong.

(b) Explain what she has done wrong.

36 ÷ 2 = 18   18 - 6 = 12

∴ OUTPUT OF 36 MEANS AN INPUT OF 12

(2)

(Total for Question 11 is 3 marks)

Turn over ▷

12 Work out the value of $\dfrac{\sqrt{2.7} + 6.5}{4.8 - 1.06}$

Give your answer correct to 2 decimal places.

_2.18_

(Total for Question 12 is 3 marks)

13 Drinks and snacks can be bought in a cinema.

Drinks	
coffee	£1.50
cola	£1.25
orange	95p

Snacks	
popcorn	£1.75
nachos	£1.15
ice cream	£1.60
chocolate	85p

Special Offer
Buy one drink and two different snacks for £3.99

Laura is going to buy one drink and two different snacks.

Work out the most money that Laura can save by using the Special Offer.

MOST EXPENSIVE COMBINATION IS COFFEE, POPORN, ICE CREAM
£1.50 + £1.75 + £1.60 = £4.85

∴ MONEY SAVED = £4.85 − £3.99 = £0.86

_86p_

(Total for Question 13 is 3 marks)

14 $\frac{3}{8}$ of the people at a football match are men. $= 37.5\%$

27% of the people at the match are women.
The rest of the people at the match are children.

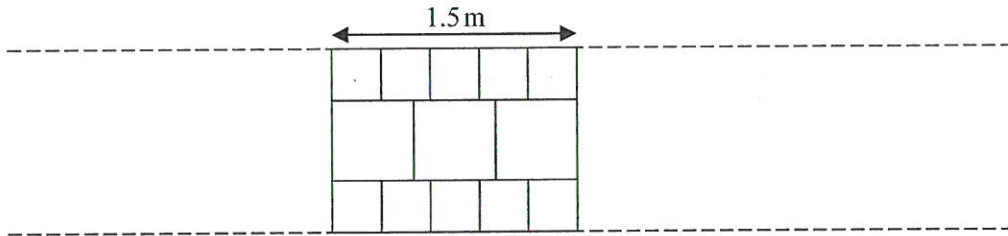Work out what percentage of the people at the match are children.

$$37.5 + 27 = 64.5\%$$
$$100 - 64.5 = 35.5$$

................35.5................ %

(Total for Question 14 is 3 marks)

Turn over ▷

15 Jake is going to make a path from small paving stones and large paving stones.
The diagram shows Jake's design for the path.
The rest of the path is made using the same pattern of paving stones.

1.5 m

A small paving stone costs £2.30
A large paving stone costs £3.65

Jake needs to buy enough paving stones to make a path that is 6 metres long.

(a) How much will Jake have to pay for the paving stones he needs?

IN 1.5m THERE ARE 10 SMALL AND 3 LARGE

COST = 10 × £2.30 + 3 × £3.65

= £33.95

$\frac{6}{1.5}$ = 4 ∴ NEEDS 4 × £33.95

£ 135.80

(4)

S 5 2 6 2 5 A 0 1 0 2 4

Harry designs a different path that is also 6 metres long using the large paving stones.

1.5 m
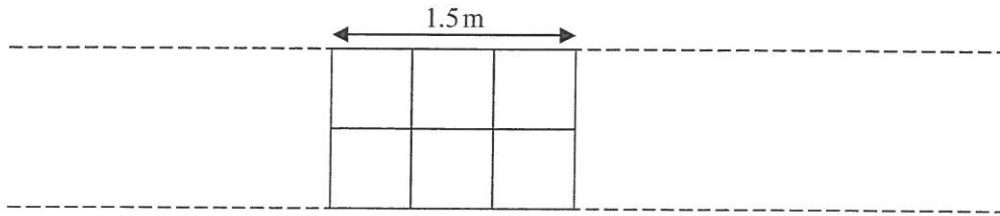
Harry says that the cost of his path will be less than half of the cost of the path that Jake designed.

(b) Is Harry correct?
    You must show how you get your answer.

6 × £3.65 × 4 = £87.60

HALF OF JAKE'S COST = £67.90
So HARRY IS <u>NOT</u> CORRECT

(2)

(Total for Question 15 is 6 marks)

16 In September Sharon paid £565 for some books.
She sold all the books for a total of £780

handwritten: ∴ PROFIT = 780 − 565
= £215

In October Sharon bought and sold some more books.
The total profit she made in October was 13% greater than the total profit she made in September.

handwritten: ∴ PROFIT = 1·13 × 215
= £242.95

In November Sharon wants to pay a bill of £30

Sharon thinks that the 13% extra profit she made in October will be enough to pay this bill.

Is Sharon correct?
You must show all your working.

handwritten: EXTRA PROFIT IN OCTOBER = 242.95 − 215 = £27.95

THIS IS NOT ENOUGH TO PAY THE BILL OF £30.

(Total for Question 16 is 3 marks)

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17 Solve $5 = \dfrac{100}{x}$

handwritten: $x = \dfrac{100}{5} = 20$

$x = $ _____ **20**

(Total for Question 17 is 1 mark)

---

18 Write an integer in the box to make the statement true.

handwritten annotation: ×3

$$\frac{2}{7} > \frac{6}{\boxed{22}}$$

handwritten annotation: × 3

Explain why the statement is true.

handwritten: $\frac{2}{7} = \frac{6}{21}$ ∴ MAKE DENOMINATOR > 21 TO MAKE $\frac{2}{7}$ LARGER.

(Total for Question 18 is 2 marks)

19 A television has a normal price of £675
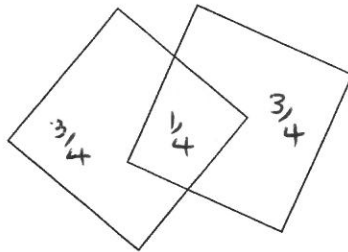In a sale the price is reduced by 32%.

Work out the price of the television in the sale.

0.68×675

£ ....459...........

20 The diagram shows a shape made by overlapping two identical squares.

The area of the shaded region is 25% of the area of each square.

Work out what fraction of the area of the whole shape is shaded.

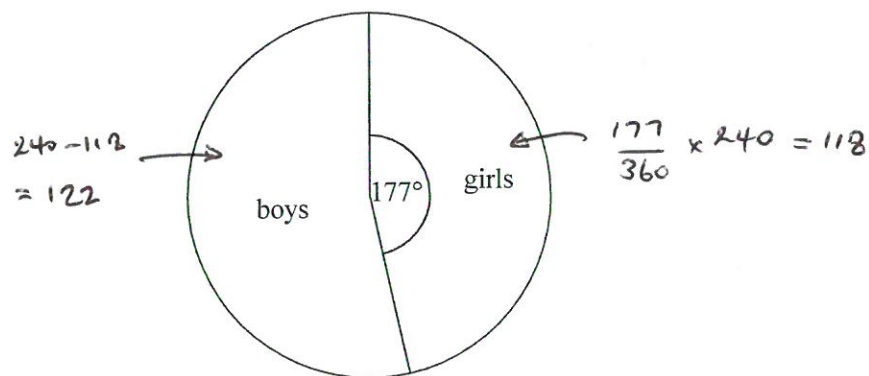$\frac{1}{4} \div \frac{7}{4} = \frac{1}{7}$

$\frac{1}{7}$

21 There are 240 students in Year 7 at a school.

The pie chart shows the proportion of boys and the proportion of girls in Year 7

$240 - 118$
$= 122$

boys   177°   girls $\frac{177}{360} \times 240 = 118$

There are 8 more girls in Year 8 than in Year 7 $118 + 8 = 126$ } 216.
There are 32 fewer boys in Year 8 than in Year 7 $122 - 32 = 90.$

Andy draws a pie chart to show the proportion of boys and the proportion of girls in Year 8

Work out the angle of the sector in Andy's pie chart that represents girls.
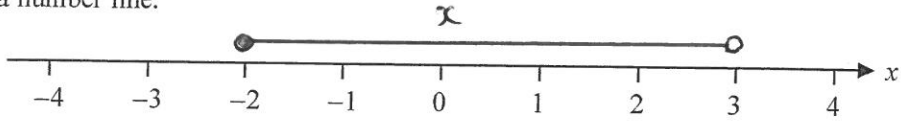
$$\frac{126}{216} \times 360 = 210°$$

210 °

(Total for Question 21 is 4 marks)

S 5 2 6 2 5 A 0 1 4 2 4

22 Here is a number line.

$$x$$

(a) On this number line, show the inequality $-2 \leqslant x < 3$

(2)

(b) Solve $5n + 3 > 27$

$$(-3) \quad (-3)$$

$$5n > 24$$

$$n > \frac{24}{5}$$

$$n > \frac{24}{5}$$
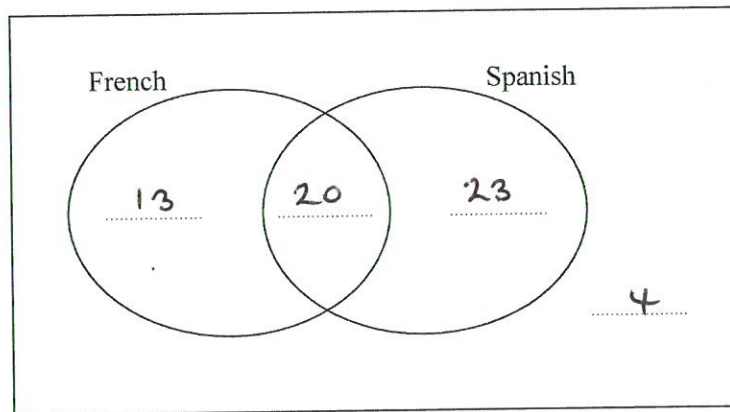
(2)

(Total for Question 22 is 4 marks)

23 There are 60 students at a college.

20 students study both French and Spanish.
13 students study French but not Spanish.
A total of 43 students study Spanish.

(a) Complete the Venn diagram for this information.

French ⬭⬭ Spanish

13   20   23

4

(3)

One of the students at the college is to be selected at random.

(b) Write down the probability that this student studies neither French nor Spanish.
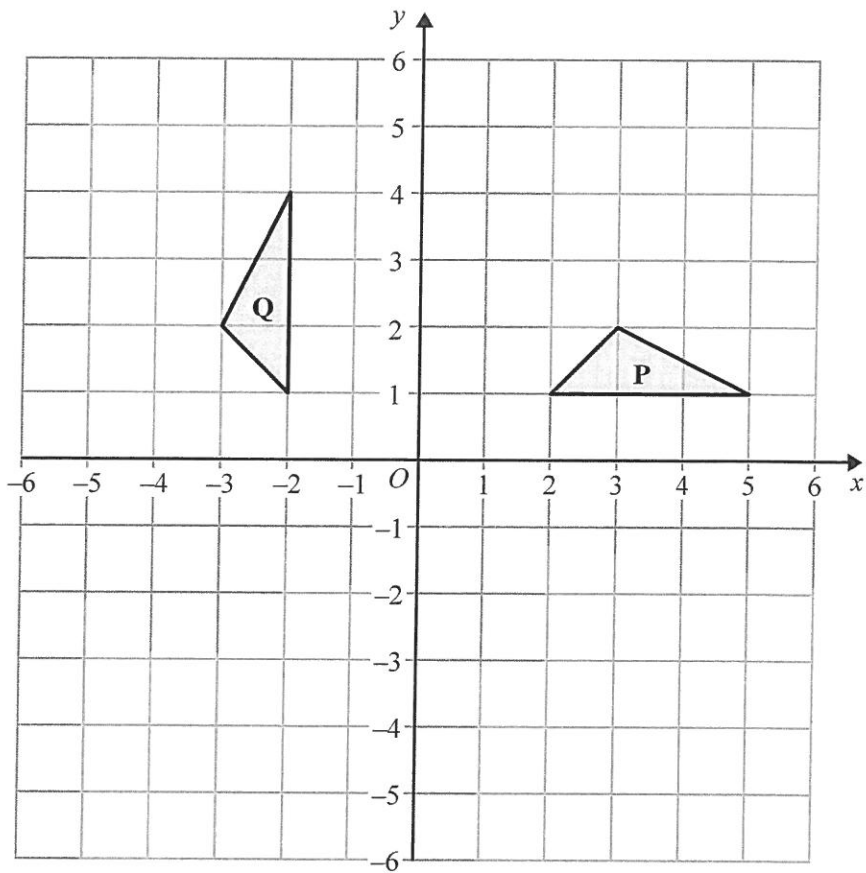
$\frac{4}{60}$

(1)

(Total for Question 23 is 4 marks)

24

Describe fully the single transformation that maps triangle **P** onto triangle **Q**.
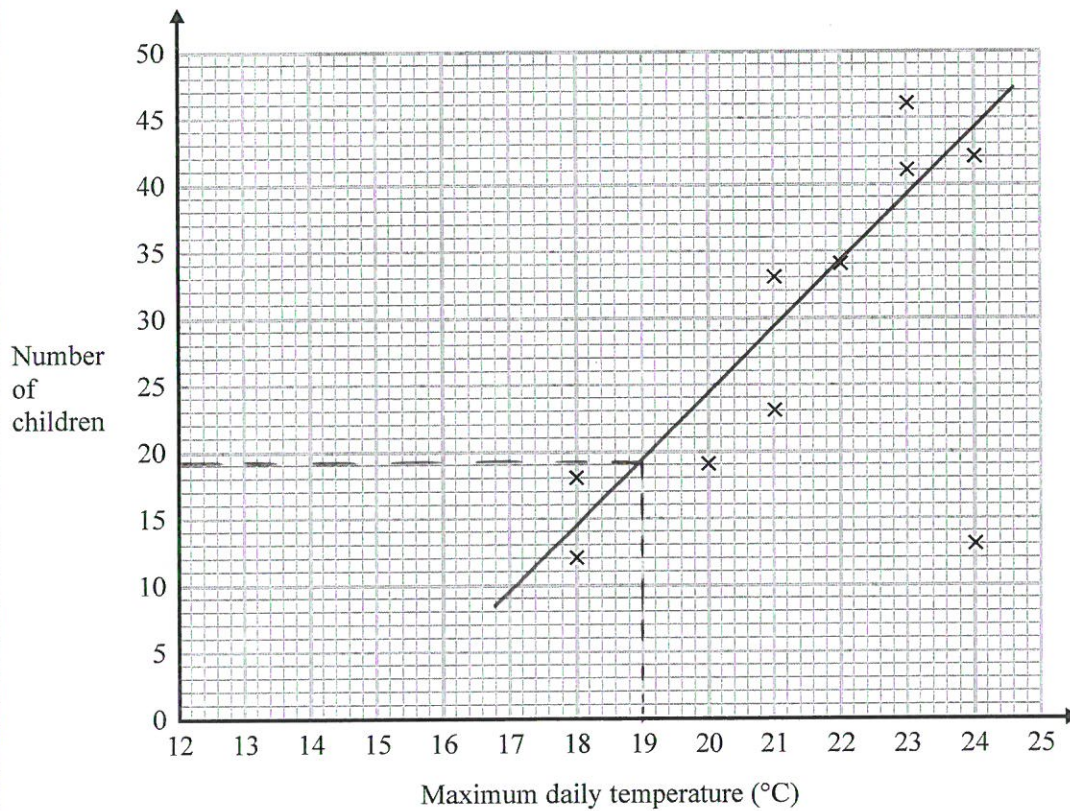
ROTATION 90° ANTICLOCKWISE ABOUT (0, -1)

....

....

(Total for Question 24 is 2 marks)

25 Jean records the maximum daily temperature each day for 10 days.
She also records the number of children going to a paddling pool for each of these days.

She draws this scatter graph for her information.

Jean's information for one of these days is an outlier on the scatter graph.

(a) Give a possible reason for this.

TOO HOT TO BE IN THE PADDLING POOL.

....

(1)

(b) What type of correlation does the scatter graph show?

POSITIVE

(1)

On the 11th day, the maximum daily temperature was 19 °C.

(c) Write down an estimate for the number of children going to the paddling pool on the 11th day.

19

(15 – 25)

(1)

It would not be sensible to use the scatter graph to predict the number of children going to the paddling pool on a day when the maximum daily temperature was 13 °C.

(d) Give a reason why.

BEYOND THE RANGE OF THE DATA

(1)

(Total for Question 25 is 4 marks)

26 The diagram shows a shape *ABCDEF*.
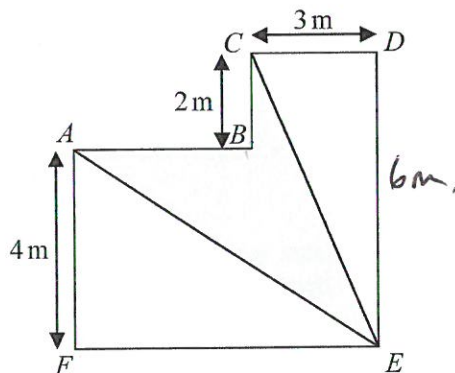
All the corners of the shape are right angles.
The perimeter of the shape is 28 m.

Work out the area of *ABCE* shown shaded on the diagram.

$$\text{PERIMETER} = 28$$

$$AF + BC + CD + DE = 4 + 2 + 3 + 6 = 15$$

$$\therefore AB + FE = 28 - 15 = 13$$

$$AB = FE - 3$$

$$\therefore FE - 3 + FE = 2FE - 3 = 13$$

$$\therefore 2FE = 16$$

$$\therefore FE = 8.$$

$$\therefore AB = 5.$$

$$\text{AREA OF } ABCDEF = 6 \times 8 - 2 \times 5 = 48 - 10 = 38$$

$$\text{AREA OF } ECD = \tfrac{1}{2} \times 3 \times 6 = 9$$

$$\text{AREA OF } AFE = \tfrac{1}{2} \times 4 \times 8 = 16$$

$$\Bigg\} \, 25$$

$$\therefore \text{SHADED AREA} = 38 - 25 = 13$$

.... 13 m²

(Total for Question 26 is 5 marks)

S 5 2 6 2 5 A 0 2 0 2 4

27 Solve the simultaneous equations

$$4x + y = 10 \quad ①$$
$$x - 5y = 13 \quad ②$$

MULTIPLY ① BY 5 $20x + 5y = 50$ ③

ADD   ② + ③ $21x = 63$

$$\therefore \quad x = 3.$$

SUBS. IN ① $4 \times 3 + y = 10$ $\therefore y = -2$

CHECK IN ② $3 - 5 \times -2$
$$= 3 + 10$$
$$= 13.$$

$x =$ ____3____

$y =$ ____-2____

(Total for Question 27 is 3 marks)

28 (a) Complete the table of values for $y = \dfrac{3}{x}$

x	0.5	1	2	3	4	5	6
y	6	3	1.5	1	0.75	0.6	0.5

(2)

(b) On the grid, draw the graph of $y = \dfrac{3}{x}$ for values of x from 0.5 to 6

(2)
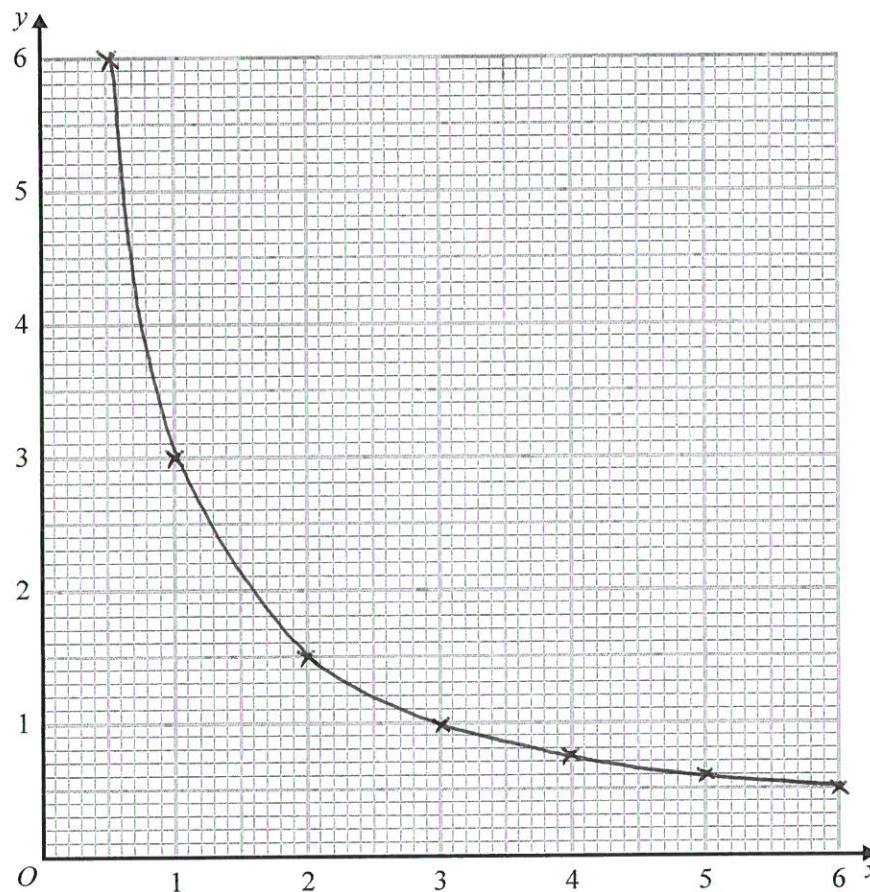
(Total for Question 28 is 4 marks)

29 Samir invests £350 in a savings account.
He gets 2% per annum compound interest.

How much money will Samir have in the account at the end of 3 years?

$$350 \times 1.02^3$$

£ 371.42

TOTAL FOR PAPER IS 80 MARKS

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