

Write your name here	
Surname	Other names
Pearson Edexcel	Centre Number
Level 1/Level 2 GCSE (9 - 1)	Candidate Number
<h1 style="margin: 0;">Mathematics</h1> <h2 style="margin: 0;">Paper 1 (Non-Calculator)</h2>	
Foundation Tier	
Mock Set 2 – Spring 2017	Paper Reference
Time: 1 hour 30 minutes	1MA1/1F
You must have: Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser. 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 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. (a) Write the following numbers in order of size.
Start with the smallest number.

-5 0 -7 4 -10

.....
-10 -7 -5 0 4
.....
(1)

- (b) Write the following numbers in order of size.
Start with the smallest number.

0.52 0.2 0.25 0.205
0.520 0.200 0.250

.....
0.2 0.205 0.25 0.52
.....
(1)

(Total for Question 1 is 2 marks)

2. Write $\frac{7}{10}$ as a percentage.

..... 70 %

(Total for Question 2 is 1 mark)

3. Write 5.5454 correct to 2 decimal places.

..... 5.55

(Total for Question 3 is 1 mark)

4. How many minutes are there in $3\frac{1}{2}$ hours?

$3 \times 60 + 30$

..... 210 minutes

(Total for Question 4 is 1 mark)

5. Write down the 17th odd number.

1, 3, 5, 7, 9, 11, 13, 15, 17, 19,
21, 23, 25, 27, 29, 31, 33

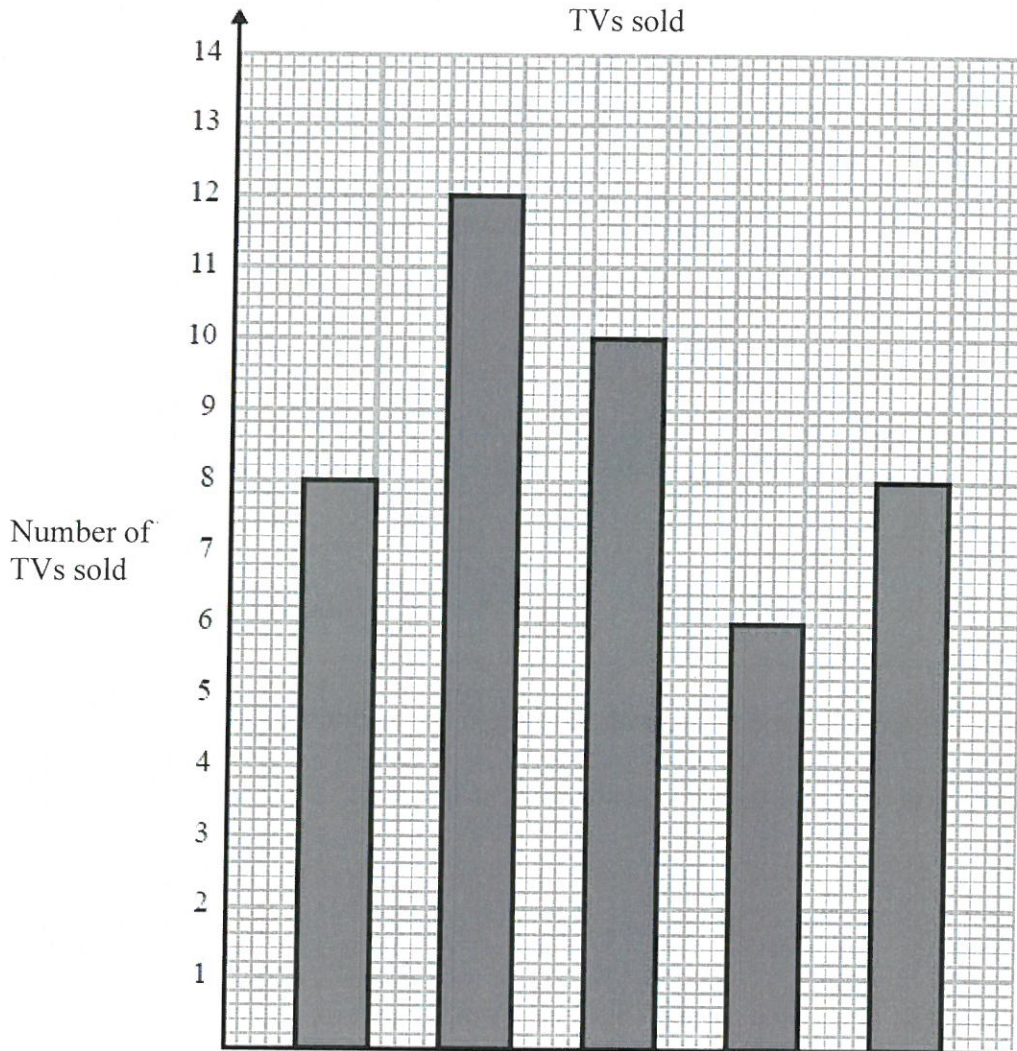
..... 33

(Total for Question 5 is 1 mark)

6. The table shows the number of TVs sold in a shop on each of five days.

Day	Mon	Tue	Wed	Thu	Fri
Number of TVs sold	8	12	9	6	8

David uses this information to draw the graph below.



Write down **three** things wrong with this graph.

1. BAR FOR WEDNESDAY IS 10 AND SHOULD BE 9
2. BARS NOT LABELLED MON, TUES, WED, THU, FRI
3. HORIZONTAL AXIS NOT LABELLED "DAY"

(Total for Question 6 is 3 marks)

7. On Monday Alex earned £120
She worked for 8 hours.

(a) Work out Alex's hourly rate of pay.

$$\frac{120}{8}$$

£ 15
(2)

On Monday Alex earned £120
On Tuesday she earned £100

Alex earned the same amount of money on Wednesday, on Thursday and on Friday.

She earned a total of £550 for these five days.

(b) How much did Alex earn on Wednesday?

$$100 + 120 = 220$$

$$550 - 220 = 330$$

$$\frac{330}{3} = 110$$

£ 110
(3)

(Total for Question 7 is 5 marks)

-
8. Write down an example to show that each of the following statements is **not** correct.

(a) The sum of an odd number and an even number is even.

5 + 4 = 9

.....

(b) The product of two prime numbers is never even.

2 × 3 = 6

.....

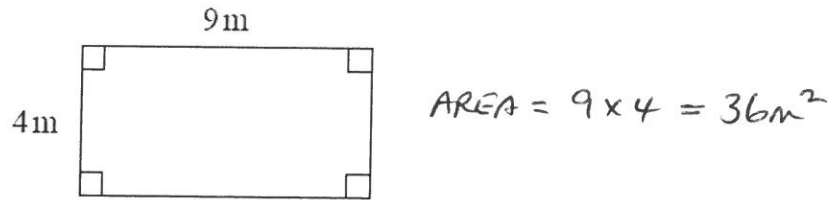
(c) When you square an integer the result is always an even integer.

5 × 5 = 25

.....

(Total for Question 8 is 3 marks)

9. Shirley has a garage.
Here is a plan of her garage floor.



Shirley wants to buy enough paint to cover the garage floor as cheaply as possible.
She can buy her paint from Decor U or from Paint Store.

<p>Decor U Floor paint £3.70 each tin 1 tin covers 12 m²</p>
--

<p>Paint Store Floor paint £3.00 each tin 1 tin covers 10 m²</p>
--

From which of these two shops should Shirley buy her paint?
You must show all your working.

DECOR U $\frac{36}{12} = 3$ TINS

$$3 \times 3.70 = \pounds 11.10$$

PAINT STORE $\frac{36}{10} = 3.6$ \therefore NEED 4 TINS

$$4 \times 3 = \pounds 12$$

DECOR U IS CHEAPER

(Total for Question 9 is 4 marks)

10. Here is a number machine.



(a) What is the **output** when the input is 4?

$$4 \times 2 - 3 = 8 - 3 = 5$$

$$\begin{array}{r} \dots\dots\dots 5 \\ \dots\dots\dots \end{array} \quad (1)$$

(b) What is the **input** when the output is 11?

$$\frac{11 + 3}{2} = \frac{14}{2} = 7$$

$$\begin{array}{r} \dots\dots\dots 7 \\ \dots\dots\dots \end{array} \quad (2)$$

(c) Show that there is an input for the machine for which the output is the same as the input.

$$x = 2x - 3$$
$$\therefore x = 3$$

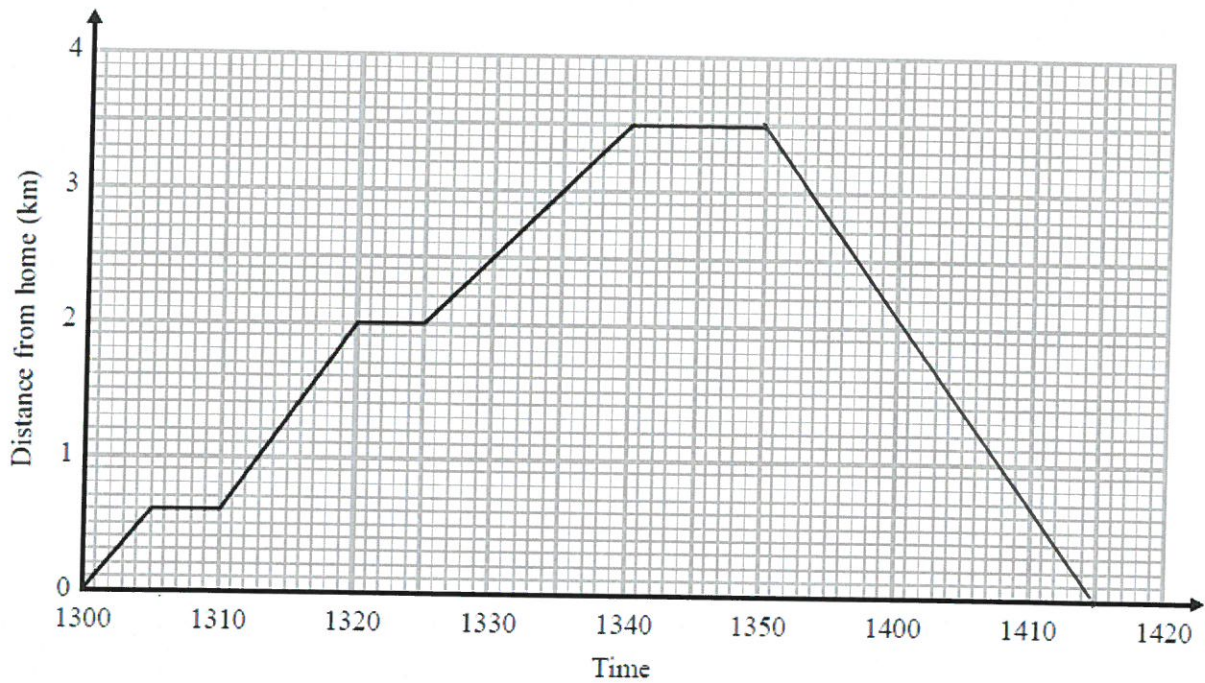
$$\text{INPUT} = 3$$

$$\text{OUTPUT} = 3 \times 2 - 3 = 6 - 3 = 3$$

(2)

(Total for Question 10 is 5 marks)

11. Arshad delivers parcels on his bike.
 He starts from his home.
 Here is the travel graph for the first 40 minutes of Arshad's journey.



- (a) What time did Arshad start his journey?

..... 1300
 (1)

Arshad had to stop to deliver each parcel.

- (b) How long, in minutes, did his first stop take?

..... 5 minutes
 (1)

- (c) What is the distance between the two stops shown on the travel graph?

$$2 - 0.6$$

..... 1.4 km
 (2)

At 1340, Arshad stopped for 10 minutes to deliver his last parcel.
 He then cycled home at a steady speed.
 Arshad got home at 1415

- (d) Complete the travel graph to show this information.

(2)

(Total for Question 11 is 6 marks)

12. Denise wants to give a pen set to every student in her school.
There are 799 students in the school.

Denise already has 102 pen sets.
She will need to buy more pen sets.
Each pen set costs 89 pence.

- (a) Work out an estimate for the total cost of the pen sets Denise needs to buy.

$$\begin{aligned} & (799 - 102) \times 89 \\ \approx & (800 - 100) \times 90 \\ = & 700 \times 90 \\ = & 63000 \\ = & \text{£} 630 \end{aligned}$$

$$\begin{array}{r} \text{£ } 630 \\ \hline \end{array} \quad (3)$$

- (b) Is your answer to (a) an underestimate or an overestimate?
Give a reason for your answer.

OVERESTIMATE : $800 - 100 > 799 - 102$ AND $90 > 89$

(1)

(Total for Question 12 is 4 marks)

13. In a year group there are 100 boys and 120 girls.

Write as a ratio the number of boys to the number of girls.
Give your answer in its simplest form.

$$\begin{aligned} & 100 : 120 \\ = & 5 : 6 \quad \downarrow \div 20 \end{aligned}$$

$$\begin{array}{r} 5 : 6 \\ \hline \end{array}$$

(Total for Question 13 is 2 marks)

14. The table below shows some information about the number of times each student in a class was late last week.

Lates	Frequency	LATES x FREQUENCY
0	15	$0 \times 15 = 0$
1	8	$1 \times 8 = 8$
2	3	$2 \times 3 = 6$
3	3	$3 \times 3 = 9$
4	1	$4 \times 1 = 4$

Work out the mean number of lates per student.

30

27

$$27 \div 30 = 0.9$$

.....0.9.....

(Total for Question 14 is 3 marks)

15. 3 jars of paprika and 4 packets of sage have a total weight of 290 grams.
7 jars of paprika have a total weight of 210 grams.

Work out the total weight of 2 jars of paprika and 2 packets of sage.

$$1 \text{ JAR OF PAPRIKA IS } \frac{210}{7} = 30\text{g}$$

$$\therefore 3 \text{ JARS IS } 3 \times 30 = 90\text{g}$$

$$\therefore 4 \text{ PACKETS OF SAGE IS } 290 - 90 = 200\text{g}$$

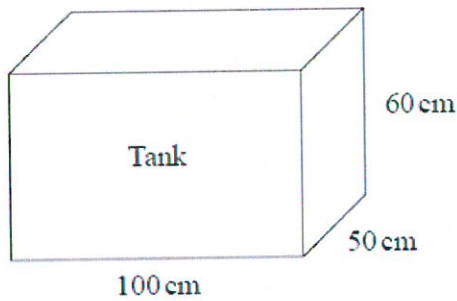
$$\therefore 1 \text{ PACKET OF SAGE IS } \frac{200}{4} = 50\text{g}$$

$$\begin{aligned} \therefore 2 \text{ PAPRIKA} + 2 \text{ SAGE IS } & 2 \times 30 + 2 \times 50 \\ & = 60 + 100 \\ & = 160 \end{aligned}$$

.....160..... g

(Total for Question 15 is 4 marks)

16.



The diagram shows the dimensions of a tank in the shape of a cuboid.

The tank is $\frac{1}{3}$ full of water.

The diagram also shows a barrel that contains water.

Tina is told that there is $18\,000\text{ cm}^3$ of water in the barrel.

Tina is going to empty all the water from the barrel into the tank.

(a) What will the depth of water in the tank then be?

$$\text{ORIGINAL DEPTH OF WATER IN TANK} = \frac{1}{3} \times 60 = 20\text{ cm}$$

$$\text{EXTRA DEPTH OF WATER} = \frac{18000}{100 \times 50} = \frac{18}{5} = 3.6\text{ cm}$$

$$\therefore \text{NEW DEPTH} = 20 + 3.6 = 23.6\text{ cm}$$

..... 23.6 cm
(4)

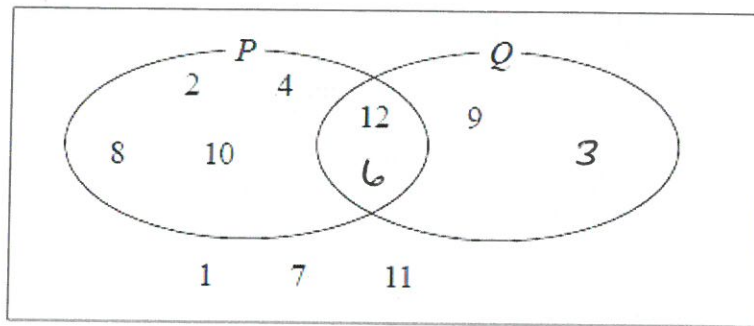
Tina finds out that the barrel contains less than $18\,000\text{ cm}^3$ of water.

(b) Explain what effect this will have on your answer to part (a).

..... IT WILL REDUCE IT
.....
.....
..... (1)

(Total for Question 16 is 5 marks)

17. The numbers 1, 2, 4, 7, 8, 9, 10, 11 and 12 are put into a Venn diagram.



The number 3 is in set Q but not in set P .
 The number 6 is in both set P and set Q .

(a) Complete the Venn diagram.

(2)

A student chooses at random a number in the completed Venn diagram.

(b) Write down the probability that this number is **not** in Set Q .

$$\frac{7}{11}$$

(2)

(Total for Question 17 is 4 marks)

18. Ali and Beth divide £280 in the ratio 2 : 5
Work out how much each person gets.

A	B	
2	5	7
80	200	280

↓ × 40

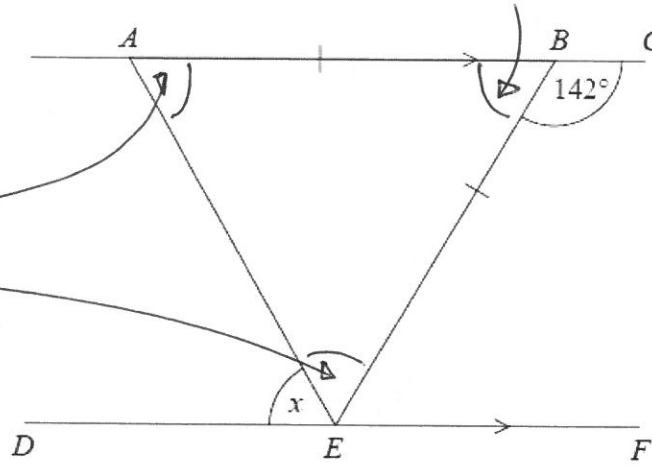
Ali £ 80

Beth £ 200

(Total for Question 18 is 2 marks)

19.

ANGLES ON A STRAIGHT LINE
 ADD UP TO 180° : $180 - 142$
 $= 38$



BASE ANGLES
 OF AN ISOSCELES
 TRIANGLE ARE
 EQUAL AND ANGLES
 IN A TRIANGLE ADD
 UP TO 180
 $180 - 38 = 142$
 $\frac{142}{2} = 71$

ABC and DEF are parallel straight lines.
 ABE is an isosceles triangle with $AB = BE$.
 Angle $CBE = 142^\circ$

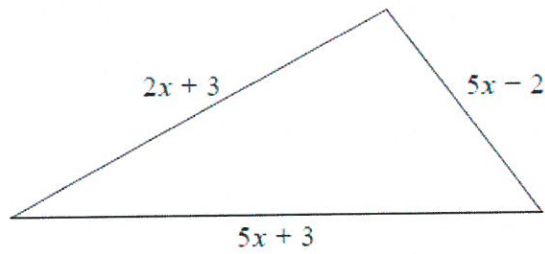
Work out the size of angle x .
 Give a reason for each stage in your working.

ALTERNATE ANGLES ARE EQUAL
 $\therefore \hat{BAE} = x$
 $\therefore x = 71$

..... 71

(Total for Question 19 is 5 marks)

20. The perimeter of a square has the same length as the perimeter of this triangle.



All measurements are in centimetres.

Find an expression, in terms of x , for the length of a side of the square.
Give your answer in its simplest form.

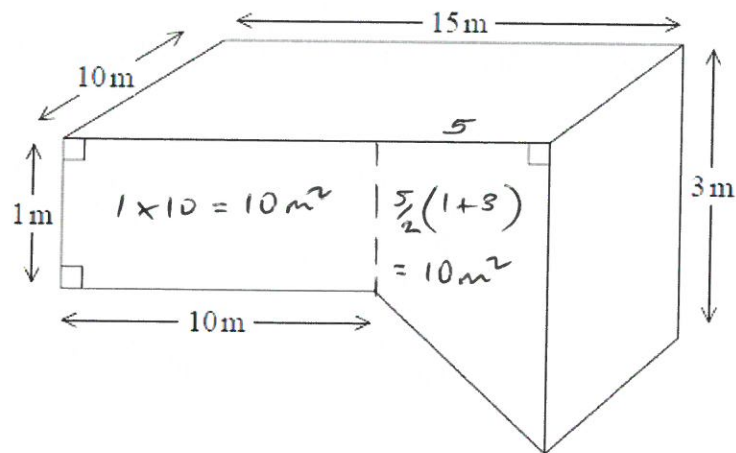
$$\begin{aligned} \text{PERIMETER} &= 2x + 3 + 5x + 3 + 5x - 2 \\ &= 12x + 4 \end{aligned}$$

$$\begin{aligned} \text{SIDE OF SQUARE} &= \frac{1}{4} (12x + 4) \\ &= 3x + 1 \end{aligned}$$

$$3x + 1$$

(Total for Question 20 is 3 marks)

21.



The diagram shows a swimming pool.

The swimming pool is in the shape of a prism.

The swimming pool is filled with water at a rate of 5 litres per second.

Jeremy has 10 hours to fill the swimming pool.

$1 \text{ m}^3 = 1000 \text{ litres}$.

Will he completely fill the swimming pool in 10 hours?

You must show all your working.

$$\text{TOTAL AREA OF CROSS-SECTION} = 10 + 10 = 20 \text{ m}^2$$

$$\therefore \text{VOLUME} = 20 \times 10 = 200 \text{ m}^3 = 200,000 \text{ l}$$

$$\text{TIME} = \frac{200,000}{5} = 40,000 \text{ SECONDS}$$

$$10 \text{ HOURS} = 10 \times 60 \times 60 = 36,000 \text{ SECONDS}$$

\therefore SINCE IT WILL TAKE 40,000 SECONDS AND 10 HOURS IS 36,000 SECONDS, IT WILL TAKE LONGER THAN 10 HOURS TO FILL.

(Total for Question 21 is 5 marks)

22. It takes 12 men 5 days to complete a job.

(a) Work out how many days it would take 3 men to complete the same job.

$$12 \times 5 = 60 \text{ MAN DAYS}$$

$$\therefore \text{ WITH 3 MEN, TAKES } \frac{60}{3} = 20 \text{ DAYS}$$

.....20.....
(2)

(b) (i) State one assumption you made in working out your answer.

.....ALL THE MEN WORK AT THE SAME RATE.....

(ii) How will your answer be affected if your assumption is **not** correct?

.....TIME COULD INCREASE OR DECREASE, EG FASTER WORKING

.....MEN WILL DECREASE THE NUMBER OF DAYS.....

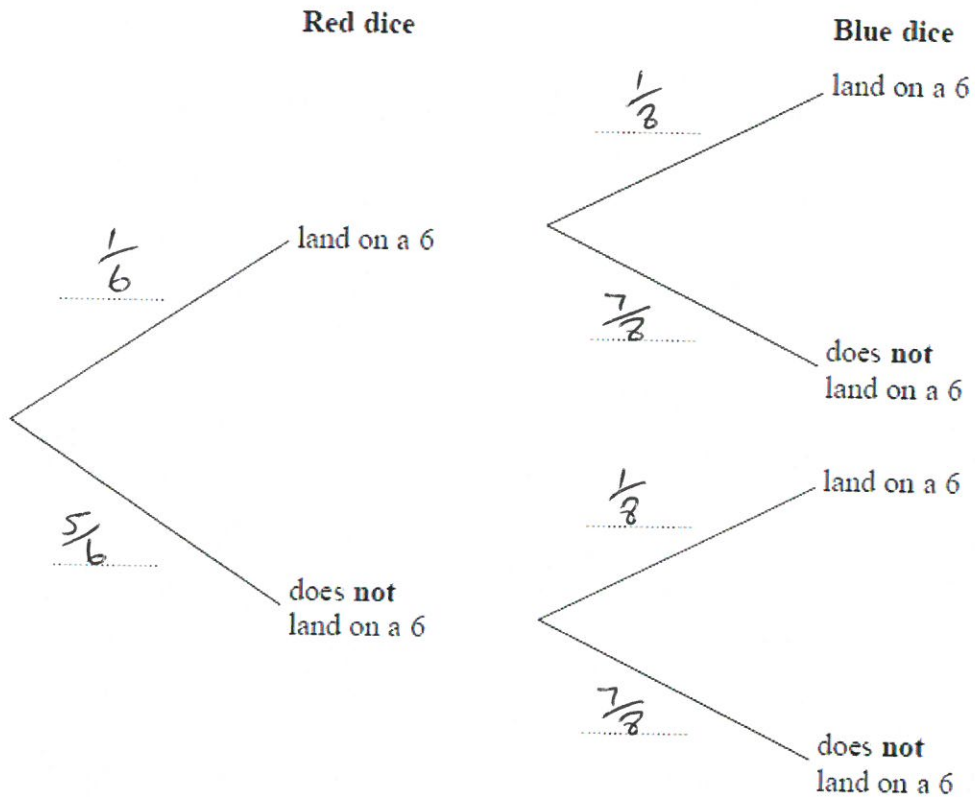
(2)

(Total for Question 22 is 4 marks)

23. Graham has a fair red 6-sided dice and a fair blue 8-sided dice.
 The red dice can land on 1, 2, 3, 4, 5 or 6
 The blue dice can land on 1, 2, 3, 4, 5, 6, 7 or 8

Graham is going to roll both dice.

- (a) Complete the probability tree diagram.



(2)

- (b) Work out the probability that neither dice will land on a 6

$$\frac{5}{6} \times \frac{7}{8}$$

$$\frac{35}{48}$$

(2)

(Total for Question 23 is 4 marks)

24. Here are the first 7 terms of a quadratic sequence.

$$\begin{array}{ccccccc} 3 & 6 & 11 & 18 & 27 & 38 & 51 \\ & +3 & +5 & +7 & +9 & +11 & +13 \end{array}$$

(a) Find the next term in this sequence.

$$51 + 15 = 66$$

.....66.....
(1)

The n th term of a different sequence is $2n^2 + 5$

(b) Work out the 6th term of this sequence.

$$\begin{aligned} & 2 \times 6^2 + 5 \\ = & 2 \times 36 + 5 \\ = & 72 + 5 \\ = & 77 \end{aligned}$$

.....77.....
(1)

(Total for Question 24 is 2 marks)

25. A metal box has a weight of 8×10^3 grams.

Find, in standard form, the weight of 10 of these metal boxes.

$$\dots\dots\dots 8 \times 10^4 \text{ g} \dots\dots\dots$$

(Total for Question 25 is 1 mark)

TOTAL FOR PAPER IS 80 MARKS