Write your name here

Surname	Other names

Edexcel GCSE

Centre Number	Candidate Number

Applications of Mathematics

Unit 2: Applications 2

For Approved Pilot Centres ONLY

Foundation Tier

Wednesday 13 June 2012 – Morning
Time: 1 hour 45 minutes

Paper Reference
5AM2F/01

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.

Information

- The total mark for this paper is 100
- The marks for **each** question are shown in brackets
  – *use this as a guide as to how much time to spend on each question.*
- Questions labelled with an **asterisk** (*) are ones where the quality of your written communication will be assessed.

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 ▶

P40682A

6/6/7/3/

P 4 0 6 8 2 A 0 1 2 4

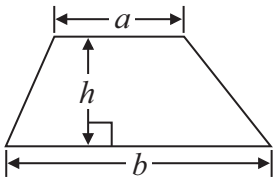
PEARSON

GCSE Mathematics 2AM01

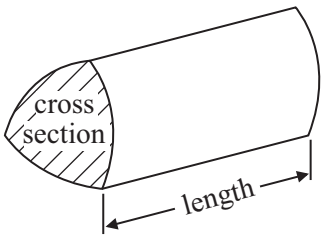
Formulae: Foundation Tier

You must not write on this formulae page.
Anything you write on this formulae page will gain NO credit.

Area of trapezium = $\frac{1}{2}(a + b)h$



Volume of prism = area of cross section × length



Answer ALL questions.

Write your answers in the spaces provided.

You must write down all stages in your working.

1 12475 people went to a concert.

(a) Write down the value of **2** in the number 12475

.....

(1)

6.3 million people watched the concert on television.

(b) (i) Write down 6.3 million in figures.

.....

(ii) What is the value of **3** in 6.3 million?

.....

(2)

The concert finished at 9.45 pm.

(c) Write 9.45 pm as a 24-hour clock time.

.....

(1)

(Total for Question 1 is 4 marks)

2 Here are the prices of tickets for a Summer Fair.

Summer Fair tickets	
Adult ticket:	£3.85
Child ticket:	£2.25
Senior ticket:	£3.40

Graham buys one adult ticket and one child ticket.

(a) Work out the total cost.

£.....

(2)

Natalie buys one adult ticket and three senior tickets.
She pays with a £20 note.

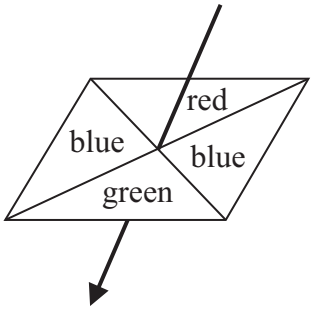
(b) How much change should Natalie get?

£.....

(3)

(Total for Question 2 is 5 marks)

3 Here is a fair 4-sided spinner for a game.



Gemma spins the spinner.

Impossible	Unlikely	Even	Likely	Certain

Use a word from the box that best describes the chance of each of the following events.

(a) Gemma gets a blue.

.....

(1)

(b) Gemma gets a red.

.....

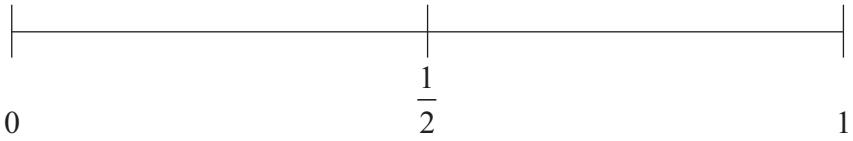
(1)

There are 6 coins in a bag.
There are

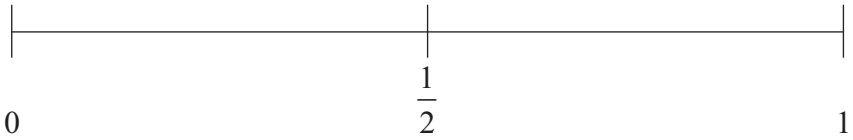
three 10p coins
two 5p coins
one 2p coin

Chris takes at random a coin from the bag.

(c) (i) On the probability scale below, mark with a cross (**X**) the probability that Chris will take a 20p coin.



(ii) On the probability scale below, mark with a cross (**X**) the probability that Chris will take a coin with a value less than 20p.



(2)

(Total for Question 3 is 4 marks)

4 Jason is a racing driver.
Jason drove 72 laps in a race.

Jason drove the first 23 laps.
Then he stopped to have his tyres changed.

Jason drove for some more laps.
Then he stopped for a second time.

Jason then drove the last 20 laps of the race.

(a) Work out the number of laps between Jason's first stop and his second stop.

.....

(3)

Jason took on average 2.25 minutes to drive each of the 72 laps.

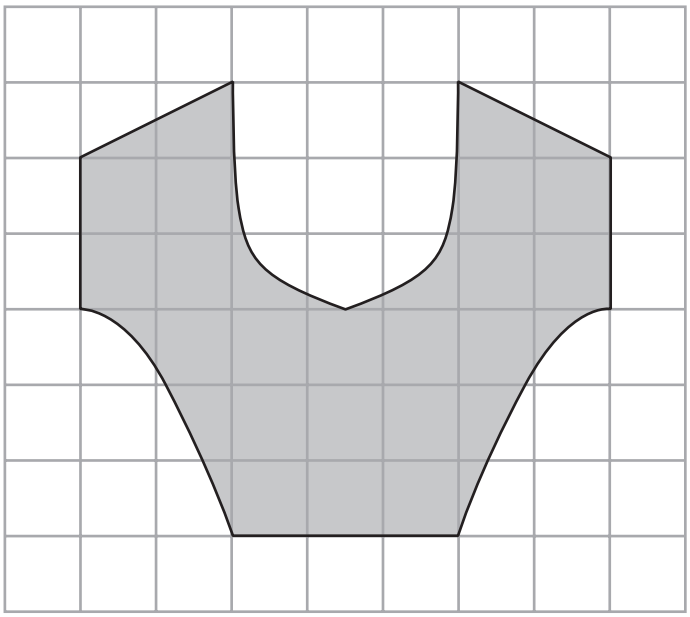
(b) Work out the total time Jason drove.
Give your answer in hours and minutes.

..... hours ..... minutes

(3)

(Total for Question 4 is 6 marks)

5 The diagram shows a company logo drawn on a centimetre grid.



Estimate the area of the logo.

.....cm^2

(Total for Question 5 is 2 marks)

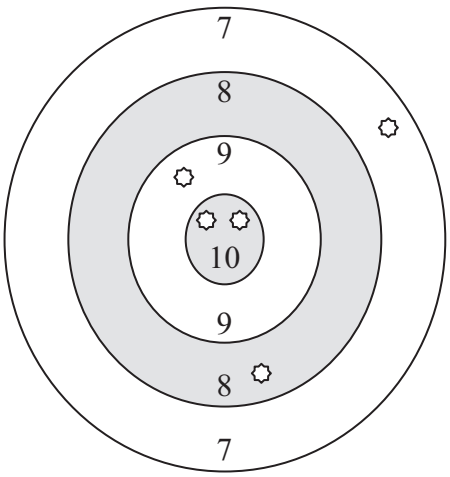
6 Parveen and Jenny are in a shooting competition.
They each have 5 shots at a target.

Each time they hit the target, they score 7 or 8 or 9 or 10

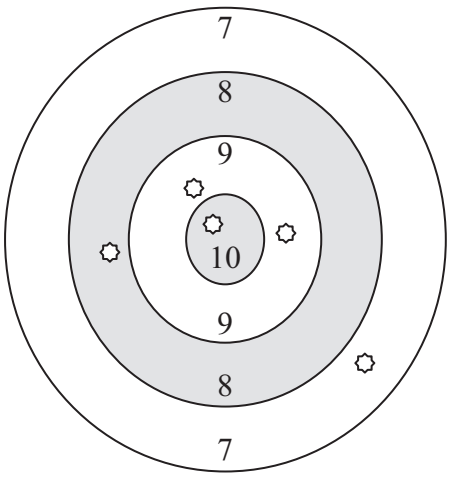
The diagrams show the results of each of their 5 shots.

○ shows a shot that has hit the target

Parveen's target



Jenny's target



The five scores are added to get the total score.

(a) Work out the difference between Parveen's total score and Jenny's total score.

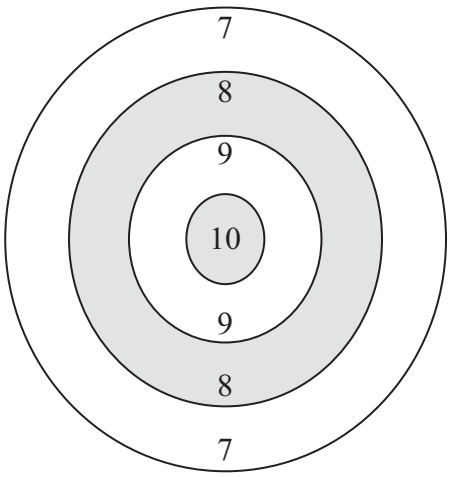
.....

(3)

Marta is also in the shooting competition.
Marta's total score is 39

(b) On the target below, show with a ✪, the possible result of each of Marta's 5 shots.

Marta's target



(2)

(Total for Question 6 is 5 marks)

7 The diagram shows Bob's bathroom wall.

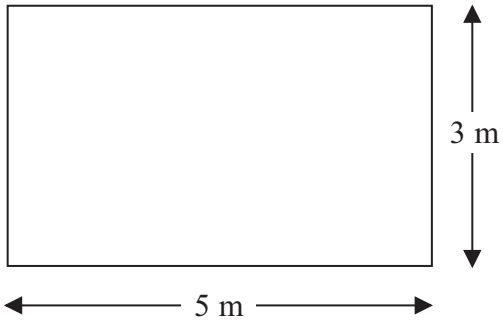


Diagram **NOT** accurately drawn

The wall has a length of 5 m.
The wall has a height of 3 m.

Bob is going to cover the wall with tiles.
He is going to use square tiles of side 25 cm.

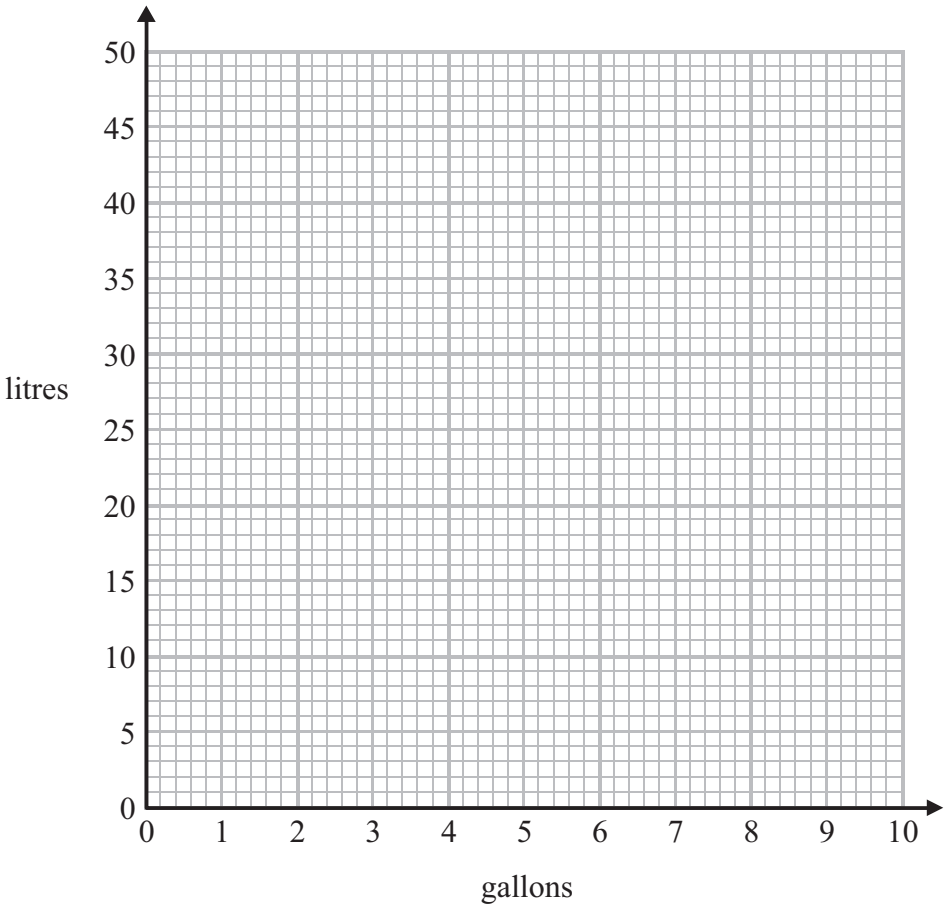
How many tiles will Bob have on the bathroom wall?

.....

(Total for Question 7 is 3 marks)

8 Given that 1 gallon = 4.5 litres

(a) On the grid, draw a conversion graph you can use to convert between gallons and litres.



(2)

Caroline buys 30 litres of petrol.

(b) How many gallons of petrol does Caroline buy?

..... gallons

(2)

There are 60 gallons of oil in an oil tank.

(c) How many litres of oil are in the oil tank?

..... litres

(2)

(Total for Question 8 is 6 marks)

9 Here is a photograph.
The photograph is in the shape of a rectangle.

Diagrams **NOT** accurately drawn

Jill makes enlargements of photographs.

Jill made Enlargement **A** and Enlargement **B** of the photograph.

Enlargement **A**

Enlargement **B**

(a) Work out the scale factor of Enlargement **A**.

.....

(1)

(b) Work out the perimeter of Enlargement **B**.

..... cm

(3)

The table shows the cost of each enlargement.

	Cost
Enlargement **A**	£4.00
Enlargement **B**	£6.00

David buys some of the enlargements.
He pays exactly £34

(c) Work out how many of Enlargement **A** and how many of Enlargement **B** David could buy.

..... Enlargement **A**

..... Enlargement **B**

(3)

(Total for Question 9 is 7 marks)

10 Hawk Shop has scooters for hire.
You can use this rule to work out the total cost of hiring a scooter.

Total cost = Fixed charge + number of days × cost per day

The table below shows the fixed charge and the cost per day for hiring scooters.

Scooter	Fixed charge	Cost per day
3-wheel scooter	£20	£10
4-wheel scooter	£25	£12
deluxe scooter	£30	£15

Robert hires a 3-wheel scooter for 7 days.

(a) Work out the total cost.

£.....

(2)

Elaine hires a deluxe scooter.
The total cost is £180

(b) Work out how many days Elaine hired the deluxe scooter for.

..... days

(3)

(Total for Question 10 is 5 marks)

11 Mrs Defoe is organising a school trip for 72 children.

The total cost of the trip is £680
The school will pay £500 towards the total cost of the trip.
The children will pay the rest of the total cost.

(a) Work out how much money each child has to pay.

£.....

(3)

The ratio of the number of adults on the trip to the number of children on the trip is 1 : 8

Mrs Defoe has booked two coaches.
There are 40 seats on each coach.

*(b) Will there be enough seats on these two coaches for all the adults and the 72 children?
You must show all your working.

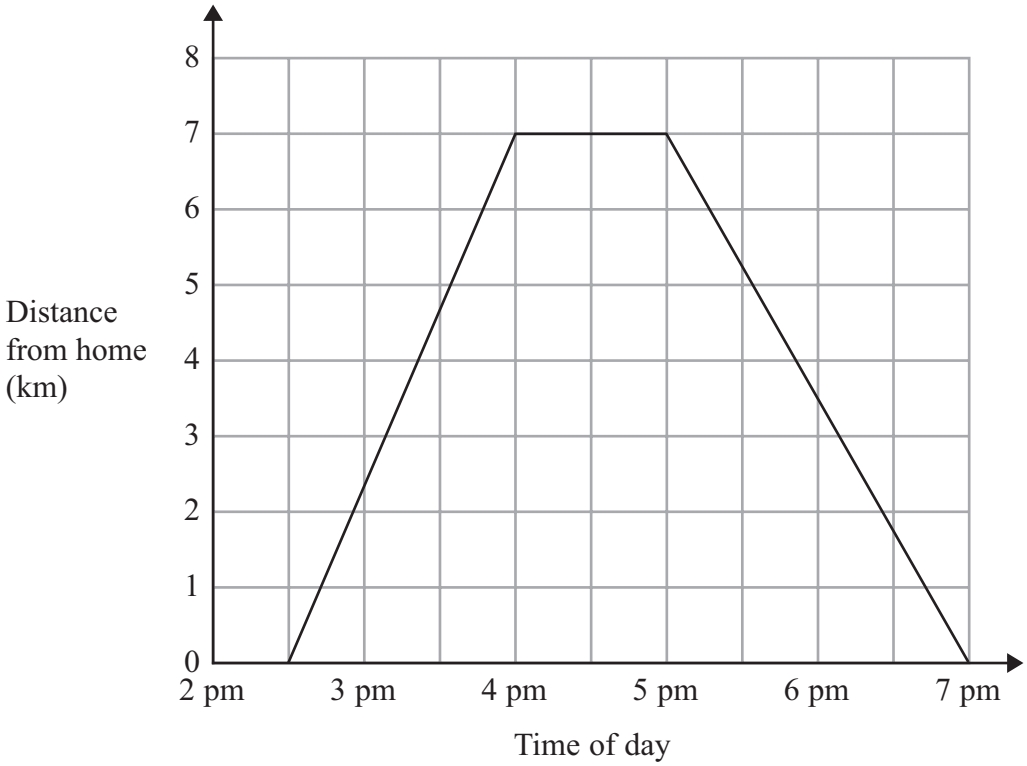
(4)

(Total for Question 11 is 7 marks)

12 Suha walked 7 km from her home.

She then had a rest.
Suha then walked home.

Here is Suha's travel graph.



(a) What time did Suha leave home?

.....

(1)

(b) How long did Suha rest for?

.....

(1)

(c) What time did Suha start to walk home?

.....

(1)

(d) Work out the total time that Suha was away from home.

..... hours

(1)

(Total for Question 12 is 4 marks)

13 The diagram shows a ramp next to a step.

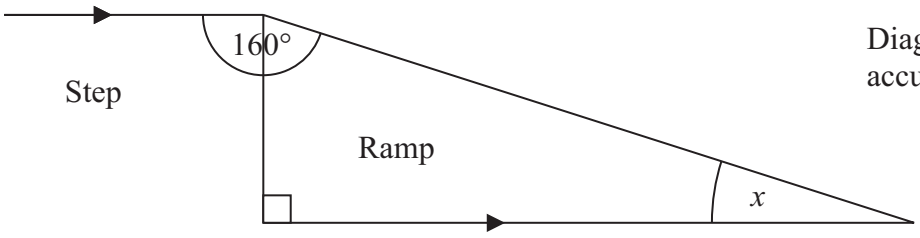


Diagram **NOT** accurately drawn

(i) Work out the size of the angle marked x.

$x =$ ..... °

(ii) Give a reason for your answer.

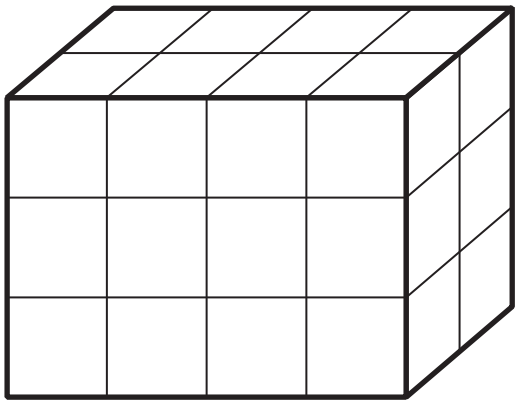
.....

.....

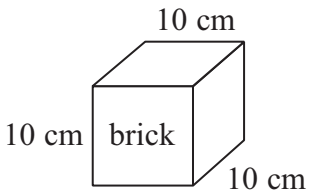
.....

(Total for Question 13 is 3 marks)

14 Here is a box in the shape of a cuboid.



Diagrams **NOT** accurately drawn



The box is completely full of bricks as shown in the diagram.
Each brick is in the shape of a cube of side 10 cm.

Work out the volume of the box.

.....

(Total for Question 14 is 4 marks)

15 Jim buys 3 portions of chips.
The total cost is £2.85

Emma buys fish and 2 portions of chips.
The total cost is £4.80

(a) Work out the cost of the fish.

£.....

(3)

Emma and Dan share the cost of £4.80 in the ratio 5 : 3

(b) Work out how much Emma and Dan each pay.

Emma £.....

Dan £.....

(3)

(Total for Question 15 is 6 marks)

16 The diagram shows a box for chocolates.
The box is in the shape of a triangular prism.

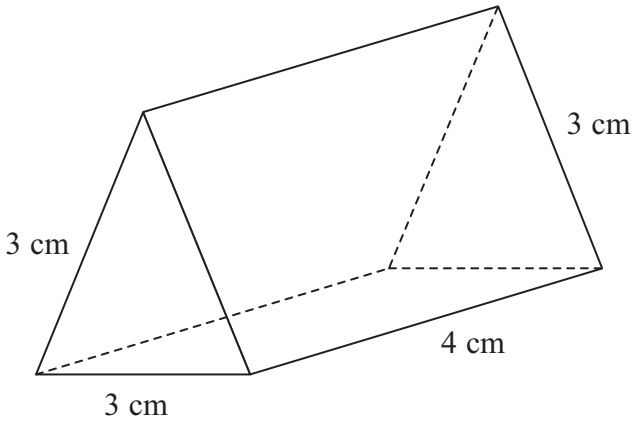
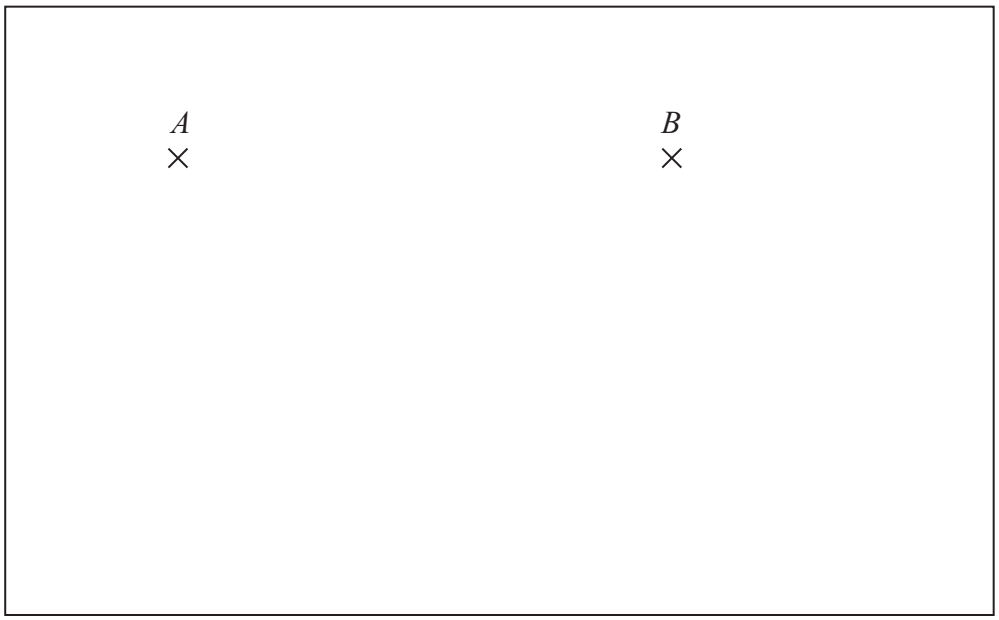


Diagram **NOT** accurately drawn

In the space below, draw an accurate net of this box.

(Total for Question 16 is 3 marks)

17 The diagram shows a map of a field.
The scale of the map is 1 cm represents 20 m.



Wind turbines

A and *B* are two wind turbines in the field.

(a) Find the real distance, in metres, between the two wind turbines.

..... m

(3)

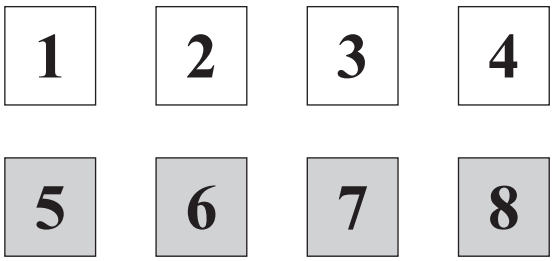
A third wind turbine is to be put in this field.
There must be at least 100 m between wind turbines.

*(b) Show, by shading, where the third wind turbine can be put.

(3)

(Total for Question 17 is 6 marks)

18 Mark has 4 white cards and 4 grey cards.
There is a number on each card, as shown below.



Mark mixes up the white cards.
He puts the cards on the table so that the numbers are hidden.

Mark mixes up the grey cards.
He puts the cards on the table so that the numbers are hidden.

Mark and Jean play a game with all of these cards.

Mark asks Jean to take at random one white card and one grey card.

(a) Write down all the possible combinations of the pairs of numbers that Jean can take.

.....

.....

.....

.....

(2)

Jean wins the game when the numbers on the two cards add up to more than 9

Mark and Jean are going to play this game 80 times.
Mark will mix up the white cards and mix up the grey cards after each game.

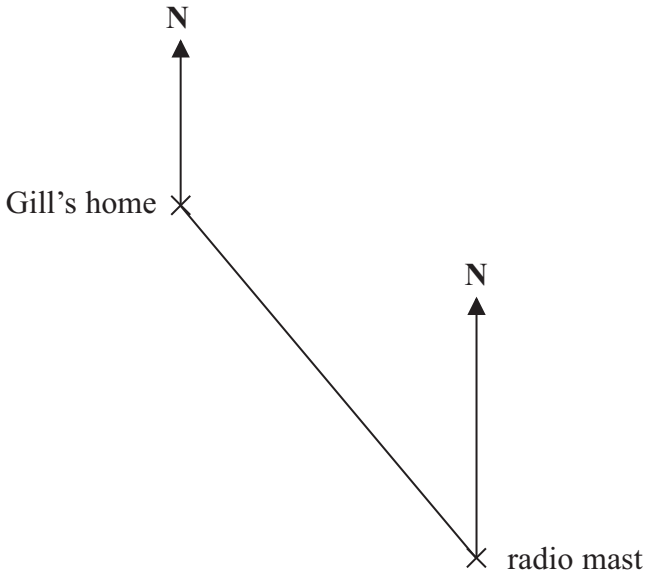
(b) Estimate the number of games that Jean will win.

.....

(3)

(Total for Question 18 is 5 marks)

19 The accurate diagram shows the position of a radio mast and the position of Gill's home.



(a) What is the bearing of Gill's home from the radio mast?

.....°

(1)

Malcolm's home is
due East of Gill's home,
on a bearing of 040° from the radio mast.

(b) On the diagram, mark the position of Malcolm's home with a cross (**X**).

(2)

A signal from the radio mast has a range of 8 km, as shown in the diagram.

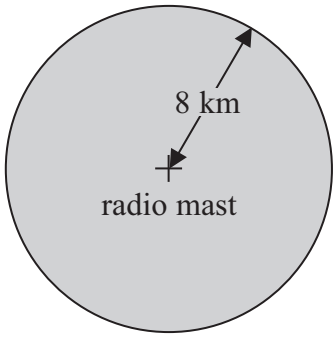


Diagram **NOT** accurately drawn

(c) Calculate the area of the shaded region.
Give your answer correct to 3 significant figures.

..... km^2

(2)

(Total for Question 19 is 5 marks)

20 Michelle is x years old.
Angela is 5 years older than Michelle.

The sum of their ages, in years, is less than 50

(a) Write down, in terms of x, an inequality to show this information.

.....

(2)

(b) Work out the oldest age that Michelle can be.
Give your answer as a whole number of years.

..... years

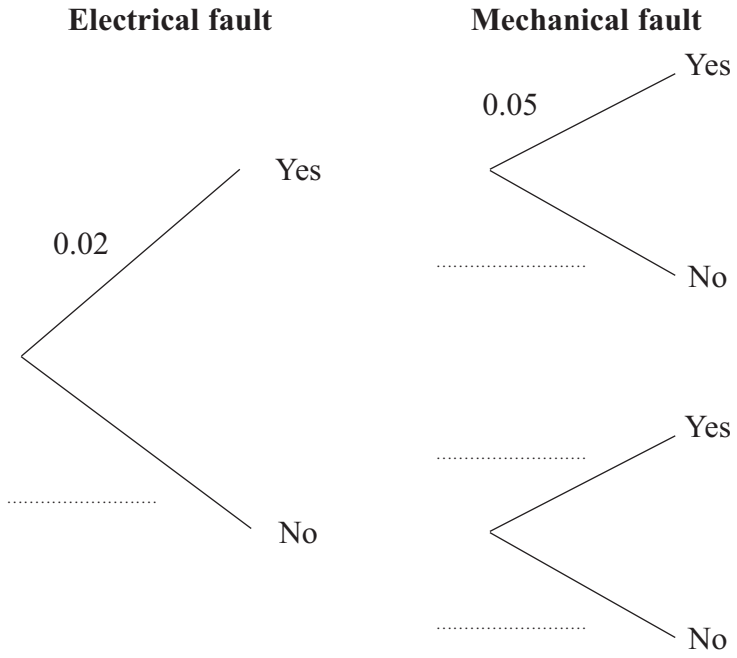
(3)

(Total for Question 20 is 5 marks)

21 Icetown makes fridges.

The probability that an Icetown fridge will have an electrical fault is 0.02
The probability that an Icetown fridge will have a mechanical fault is 0.05

(a) Complete the decision tree diagram.



(2)

Coolbox also makes fridges.

The probability that a Coolbox fridge will have **no** electrical fault and **no** mechanical fault is 0.93

Janet wants to buy a fridge with the least risk of any fault.

*(b) Which make of fridge should Janet buy, an Icetown fridge or a Coolbox fridge?

(3)

(Total for Question 21 is 5 marks)

TOTAL FOR PAPER IS 100 MARKS