Write your name here

Surname	Other names

Pearson Edexcel International GCSE

Centre Number | | | | | |

Candidate Number | | | | |

Mathematics A

Paper 2F

Foundation Tier

Tuesday 16 January 2018 – Morning
Time: 2 hours

Paper Reference
4MA0/2F

You must have:
Ruler graduated in centimetres and millimetres, protractor, 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.
- Without sufficient working, correct answers may be awarded no marks.
- Answer the questions in the spaces provided
  – *there may be more space than you need.*
- **Calculators may be used.**
- You must **NOT** write anything on the formulae page.
  Anything you write on the formulae page will gain NO credit.

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.*

Advice

- Read each question carefully before you start to answer it.
- Check your answers if you have time at the end.

Turn over ▶

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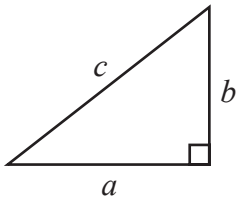
1/1/

P 5 3 2 9 7 A 0 1 2 4

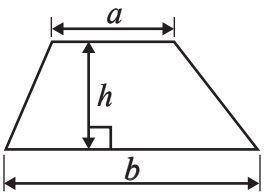
Pearson

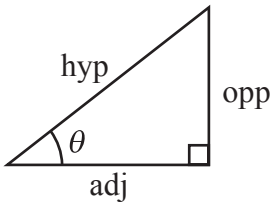
International GCSE MATHEMATICS
FORMULAE SHEET – FOUNDATION TIER

Pythagoras' Theorem
$a^2 + b^2 = c^2$



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





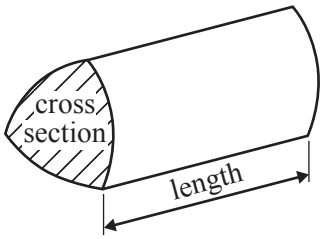
adj = hyp × cos θ
opp = hyp × sin θ
opp = adj × tan θ

or $\sin\theta = \frac{\text{opp}}{\text{hyp}}$

$\cos\theta = \frac{\text{adj}}{\text{hyp}}$

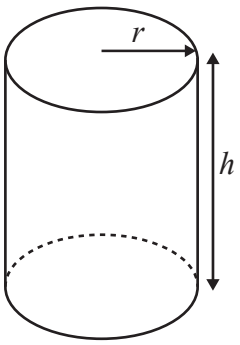
$\tan\theta = \frac{\text{opp}}{\text{adj}}$

Volume of prism = area of cross section × length



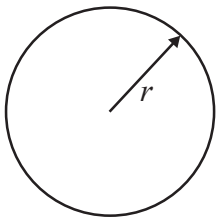
Circumference of circle = $2\pi r$

Area of circle = πr^2



Volume of cylinder = $\pi r^2 h$

Curved surface area of cylinder = $2\pi rh$

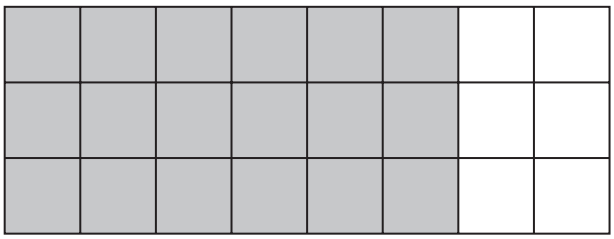


Answer ALL TWENTY THREE questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

1 Here is a shape made from squares.



(a) What fraction of this shape is shaded?
Give your fraction in its simplest form.

.....

(2)

$\frac{3}{10}$ of a triangle is shaded.

(b) What fraction of the triangle is **not** shaded?

.....

(1)

(c) Write 0.047 as a fraction.

.....

(1)

(d) Write $3\frac{1}{4}$ as a decimal number.

.....

(1)

(Total for Question 1 is 5 marks)

2 The pictogram shows information about the number of televisions sold from a shop on each of five days.

Monday	▭ ▭ ▭
Tuesday	▭ ▭ ▭
Wednesday	▭ ▭
Thursday	▭ ▭ ▭
Friday	▭ ▭ ▭ ▭

▭ represents 8 televisions

(a) How many televisions were sold on Monday?

.....

(1)

More televisions were sold on Friday than were sold on Tuesday.

(b) How many more?

.....

(2)

On Saturday, the shop had a sale.

The prices of all televisions were reduced by $\frac{1}{3}$

Before the sale, the price of a television was £549

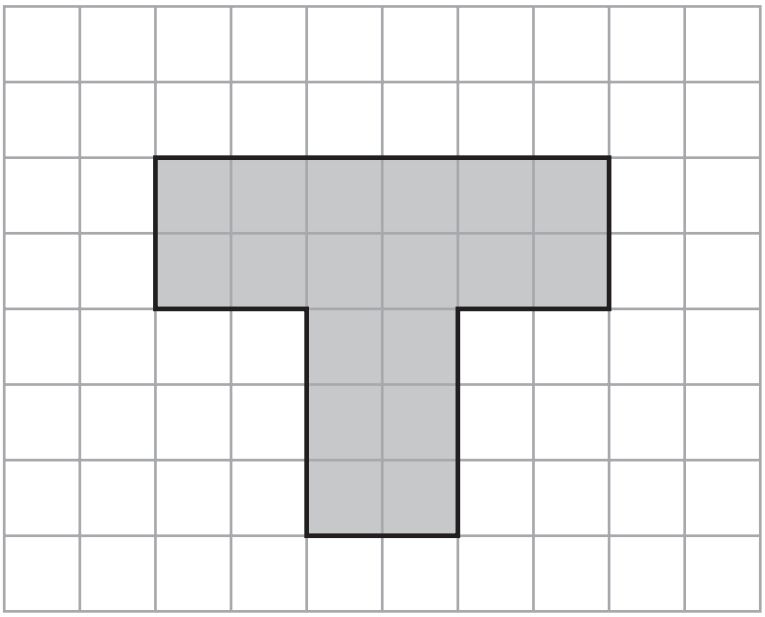
(c) What was the sale price of this television?

£ .....

(3)

(Total for Question 2 is 6 marks)

3 Here is a shaded shape drawn on a grid of centimetre squares.



(a) Find the area of the shape.

..... cm^2

(1)

(b) Find the perimeter of the shape.

..... cm

(1)

(c) How many lines of symmetry does the shape have?

.....

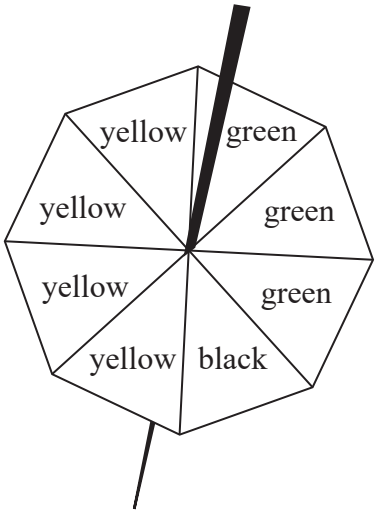
(1)

(d) In the space below, sketch a hexagon.

(1)

(Total for Question 3 is 4 marks)

4 The diagram shows a fair 8-sided spinner.



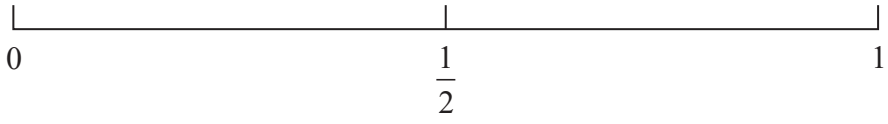
4 sides of the spinner are yellow, 3 sides are green and 1 side is black.

Jan spins the spinner once.

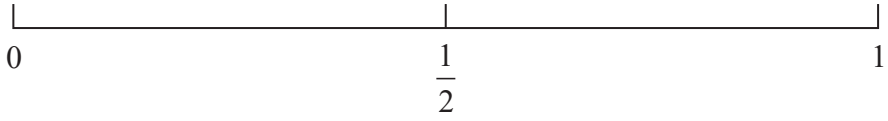
(i) Circle the word from the list below that best describes the likelihood that the spinner lands on black.

impossible unlikely evens likely certain

(ii) On the probability scale, mark with a cross (×) the probability that the spinner lands on white.

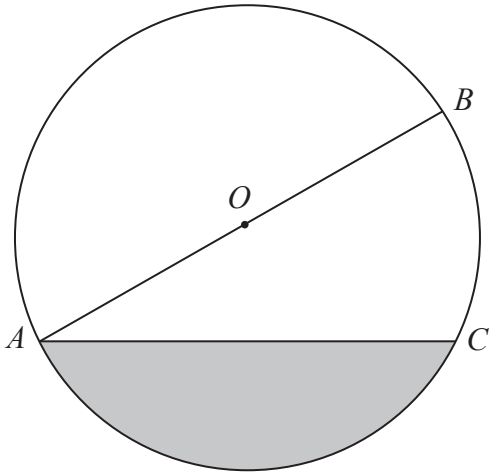


(iii) On the probability scale, mark with a cross (×) the probability that the spinner lands on yellow.



(Total for Question 4 is 3 marks)

5



A, B and C are points on a circle, centre O.

(a) Measure the length of AC.
You must include the units with your answer.

....

(2)

(b) Write down the mathematical name for

(i) the line AB,

.....

(ii) the line AC,

.....

(iii) the shaded region.

.....

(3)

(Total for Question 5 is 5 marks)

6 Here is a list of 7 numbers.

4 3 5 14 16 4 10

(a) Write down the mode.

.....

(1)

(b) Find the range.

.....

(2)

(c) Work out the mean.

.....

(2)

(Total for Question 6 is 5 marks)

7 You can use this rule to work out the number of minutes it takes to cook a piece of meat.

15 minutes plus 40 minutes for every 500 grams the piece of meat weighs

A piece of meat weighs 1500 grams.

(a) Use the rule to work out the number of minutes it takes to cook this piece of meat.

..... minutes
(3)

It takes $3\frac{1}{4}$ hours to cook a different piece of meat.

(b) How much, in grams, does this piece of meat weigh?

..... grams
(3)

Becky is going to cook a chicken.
She knows that it needs to be in the oven for 1 hour and 50 minutes.

Becky wants to take the chicken out of the oven at 13 30

(c) At what time should Becky put the chicken in the oven?

.....
(2)

(Total for Question 7 is 8 marks)

8 The cost of one adult ticket to the cinema in Hong Kong is HK$110
Rob buys 2 adult and 3 child tickets.
The total cost of these tickets is HK$475

Work out the cost of one child ticket.

HK$ .....

(Total for Question 8 is 3 marks)

9 (a) Find **two** common factors of 12 and 18

..... , ...

(2)

(b) Find **one** common multiple of 12 and 18

.....

(1)

(Total for Question 9 is 3 marks)

10 Here is a quadrilateral.

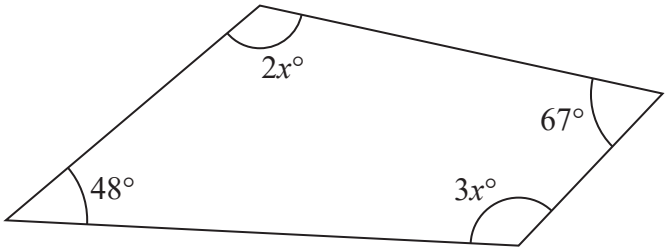


Diagram **NOT** accurately drawn

Work out the value of x.

.....

(Total for Question 10 is 3 marks)

11 The diagram shows a solid prism.

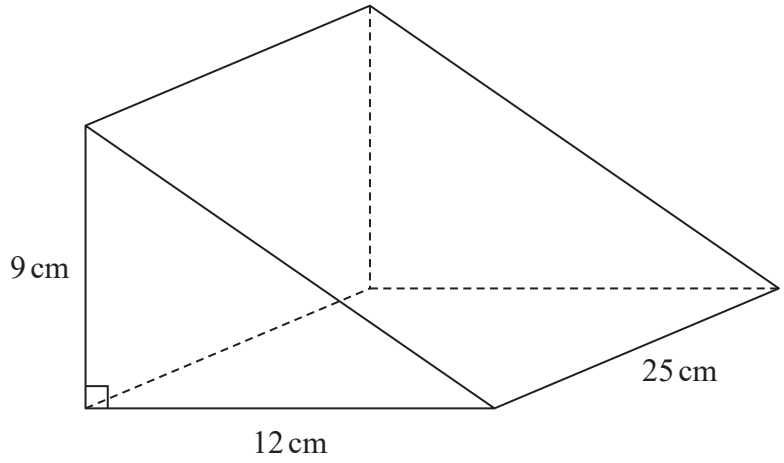


Diagram **NOT** accurately drawn

Work out the volume of the prism.

..... cm^3

(Total for Question 11 is 3 marks)

12 $P = 3d - 2e$

(a) Work out the value of P when $d = 7$ and $e = 9$

$P =$ .....

(2)

(b) Simplify $6x - 7y + 3x + 5y$

.....

(2)

(c) Solve $4t + 5 = 18$

$t =$ .....

(2)

(d) Factorise $25m + 30n$

.....

(1)

(e) Expand $p(2p - 3)$

.....

(1)

(Total for Question 12 is 8 marks)

13 Here is a list of ingredients needed to make **one** lemon cake.

Lemon cake

Ingredients
125 g butter
175 g sugar
175 g flour
60 ml milk
2 eggs
$1\frac{1}{2}$ lemons
100 g icing sugar

(a) Write down the ratio of the weight of butter to the weight of flour.
Give your ratio in its simplest form.

.....

(2)

Alison wants to make some of these lemon cakes to sell at a school fair.
She only has 750 g of butter and 8 lemons.
She has plenty of all the other ingredients.

(b) Work out the greatest number of these lemon cakes Alison can make.

.....

(2)

(Total for Question 13 is 4 marks)

14 (a) Write these fractions in order of size.
Start with the smallest fraction.

$$\frac{5}{12} \qquad \frac{7}{8} \qquad \frac{3}{4} \qquad \frac{1}{2} \qquad \frac{9}{24}$$

.....

(2)

(b) Show that $\frac{2}{7} \div \frac{4}{5} = \frac{5}{14}$

(2)

(c) Show that $3\frac{1}{6} - 1\frac{2}{3} = 1\frac{1}{2}$

(3)

(Total for Question 14 is 7 marks)

15 Mike buys c pens and r rulers.

Each pen costs 24 cents.
Each ruler costs 37 cents.

Mike spends a total of T cents buying pens and rulers.

Write down a formula for T in terms of c and r.

.....

(Total for Question 15 is 3 marks)

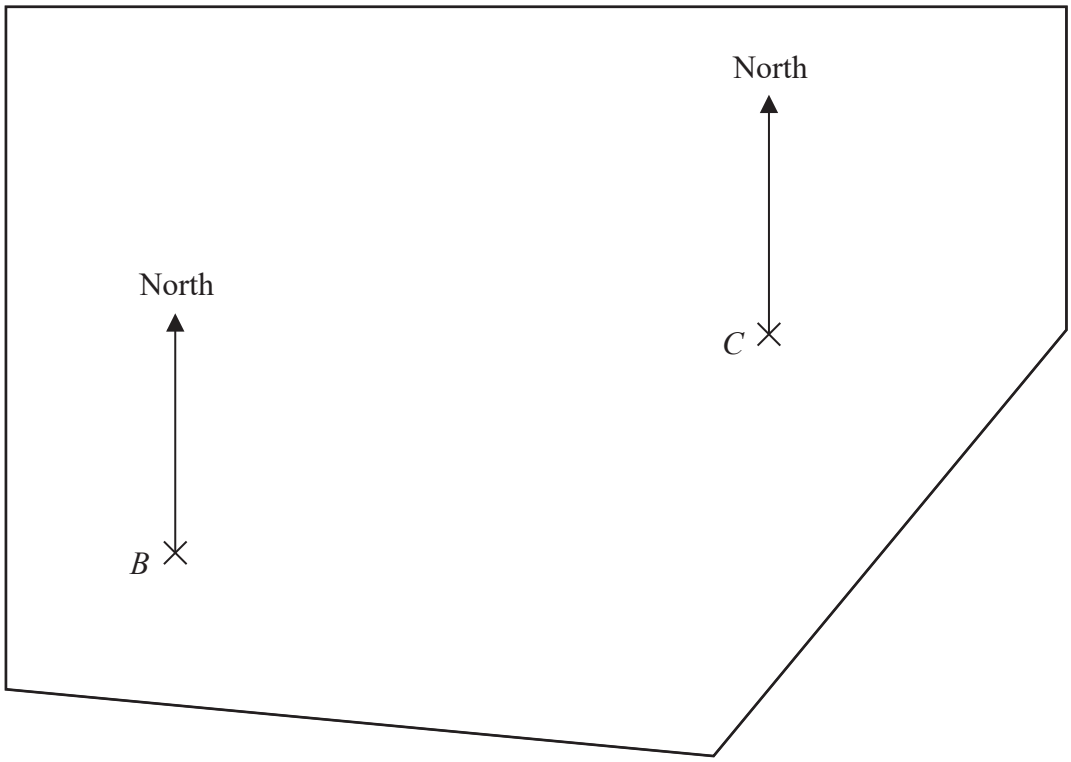
16 A bus leaves Dubai airport and travels to Abu Dhabi.
The bus travels a distance of 165 km at an average speed of 50 km/h.

Work out the time taken by the bus to travel from Dubai airport to Abu Dhabi.
Give your answer in hours and minutes.

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

(Total for Question 16 is 3 marks)

17 The accurate scale drawing shows the positions of two trees, *B* and *C*, in a field.



The scale of the drawing is 1 cm to 20 m.

A third tree, *D*, is also in the field.
D is 110 m from *B* and on a bearing of 220° from *C*.

Find the position of *D*.
Mark this point with a cross (×) and label it *D*.

(Total for Question 17 is 3 marks)

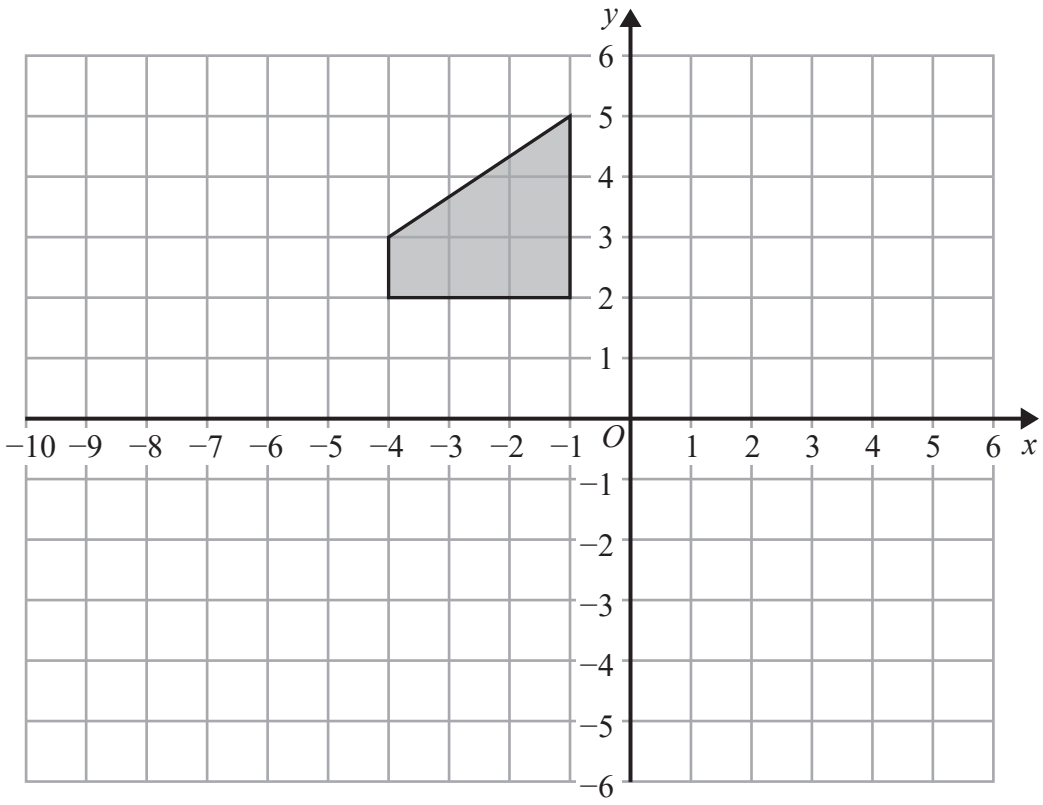
18 A circle has diameter 18 cm.

Work out the circumference of the circle.
Give your answer correct to 3 significant figures.

..... cm

(Total for Question 18 is 2 marks)

19



Rotate the shaded shape 90° clockwise about the point (−2, −1)

(Total for Question 19 is 2 marks)

20 There are only white counters, blue counters and red counters in a bag.

Charlie takes at random a counter from the bag.

The probability that he takes a red counter is $\frac{1}{12}$

The probability that he takes a white counter is three times the probability that he takes a blue counter.

Work out the probability that Charlie takes a blue counter.

.....

(Total for Question 20 is 3 marks)

21 In India,
62 million mobile phones were sold from 1st October 2014 to 31st December 2014
14.5% fewer mobile phones were sold from 1st January 2015 to 31st March 2015

(a) Work out the number of mobile phones sold in India from 1st January 2015 to 31st March 2015

..... million
(3)

The table shows information about the mean number of text messages sent by each adult in the UK in 2013 and in 2014

	Mean number of text messages sent by each adult
2013	1656
2014	1404

(b) Work out the percentage decrease in the mean number of text messages sent by each adult in the UK from 2013 to 2014
Give your answer correct to 1 decimal place.

..... %
(3)

The table gives information about the number of minutes Palina used her mobile phone each day in November.

Number of minutes (m)	Frequency
$0 \leqslant m < 10$	3
$10 \leqslant m < 20$	16
$20 \leqslant m < 30$	6
$30 \leqslant m < 40$	4
$40 \leqslant m < 50$	1

(c) Work out an estimate for the total number of minutes Palina used her mobile phone in November.

..... minutes

(3)

(Total for Question 21 is 9 marks)

22 $\mathscr{E} = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12\}$
$A = \{\text{even numbers}\}$
$B = \{4, 7, 8, 11\}$

(a) List the members of $A \cup B$

.....

(1)

(b) Is it true that $20 \in A$?
Give a reason for your answer.

.....

.....

(1)

C is a set such that $A \cap C = \varnothing$ **and** $B \cap C = \{7\}$
The set C has 3 members.

(c) List the members of one possible set C.

.....

(2)

(Total for Question 22 is 4 marks)

23 (a) Simplify fully $\dfrac{y^5 \times y^8}{y^4}$

.....

(2)

(b) Expand and simplify $(x + 7)(x - 3)$

.....

(2)

(Total for Question 23 is 4 marks)

TOTAL FOR PAPER IS 100 MARKS

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