


Please check the examination details below before entering your candidate information

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|--|--|--|--|--|--|--|--------------------------------|--|--|--|--|---|--|--|
| Candidate surname  |  |  |  |  | Other names  |  |                                |  |  |  |  |   |  |  |
| <b>Pearson Edexcel</b>   |  |  |  |  | Centre Number  |  |                                |  |  | Candidate Number   |  |   |  |  |
| <b>International GCSE</b>  |  |  |  |  | <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> |  |                                |  |  | <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> |  |   |  |  |
| <b>Tuesday 15 January 2019</b>   |  |  |  |  |  |  |                                |  |  |  |  |   |  |  |
| Morning (Time: 2 hours)  |  |  |  |  |  |  | Paper Reference <b>4MA0/2F</b> |  |  |  |  |   |  |  |
| <b>Mathematics A</b>   |  |  |  |  |  |  |                                |  |  |  |  |  |  |  |
| <b>Paper 2F</b>  |  |  |  |  |  |  |                                |  |  |  |  |   |  |  |
| <b>Foundation Tier</b>   |  |  |  |  |  |  |                                |  |  |  |  |   |  |  |
| <b>You must have:</b><br>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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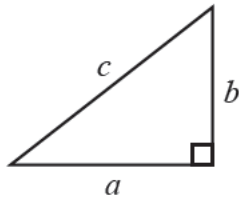
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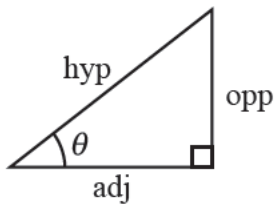
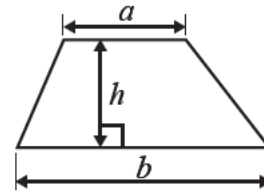
  
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**International GCSE MATHEMATICS**  
**FORMULAE SHEET – FOUNDATION TIER**

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

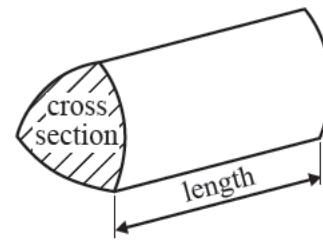


Area of a trapezium =  $\frac{1}{2}(a + b)h$



adj = hyp  $\times$  cos  $\theta$   
opp = hyp  $\times$  sin  $\theta$   
opp = adj  $\times$  tan  $\theta$

Volume of prism = area of cross section  $\times$  length



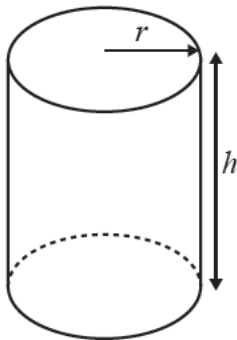
or  $\sin \theta = \frac{\text{opp}}{\text{hyp}}$

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

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

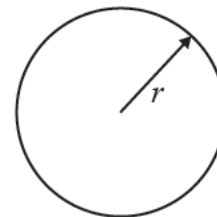
Circumference of circle =  $2\pi r$

Area of circle =  $\pi r^2$



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

Curved surface area of cylinder =  $2\pi r h$



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Answer ALL TWENTY TWO questions.

Write your answers in the spaces provided.

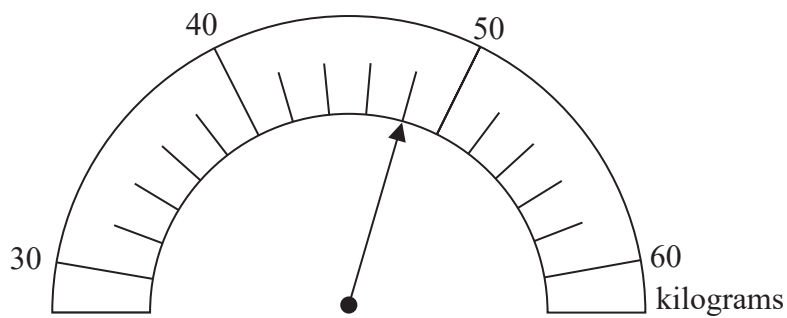
You must write down all the stages in your working.

1 Gavin is 1.6 metres tall.

(a) Change 1.6 metres into centimetres.

(1) cm

The scale shows Gavin's weight in kilograms.



(b) Write down Gavin's weight.

(1) kilograms

(c) Complete the sentence by writing a suitable metric unit on the dotted line.

The weight of a mobile phone is 150

(1)

(Total for Question 1 is 3 marks)



2 (a) Write the number 5905 in words.

(1)

(b) Write the number ten thousand one hundred in figures.

(1)

Here is a list of five numbers.

12      18      36      46      72

(c) Write down the number from the list that is a multiple of 24

(1)

(d) Insert brackets to make each calculation correct.

(i)  $5 + 7 \times 3 = 36$

(ii)  $2 \times 8 - 3 + 7 = 17$

(2)

(Total for Question 2 is 5 marks)

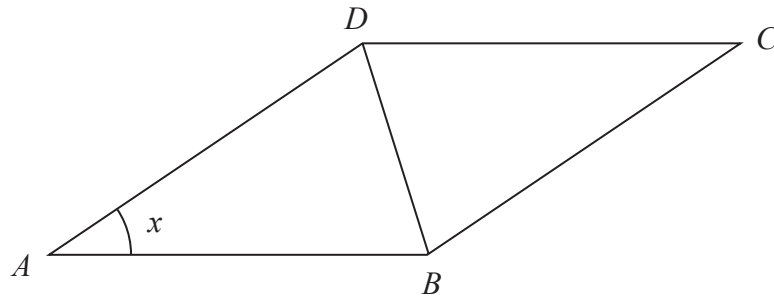
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3  $ABCD$  is a rhombus.



(a) Measure the length of the line  $BD$ .

(1) cm

(b) Measure the size of the angle marked  $x$ .

(1) °

(c) What is the mathematical name of triangle  $ABD$ ?

(1)

(d) Explain why  $ABCD$  is not a regular polygon.

(1)

(Total for Question 3 is 4 marks)



- 4 Marina asked 28 friends how many apples they ate last week. Here are her results.

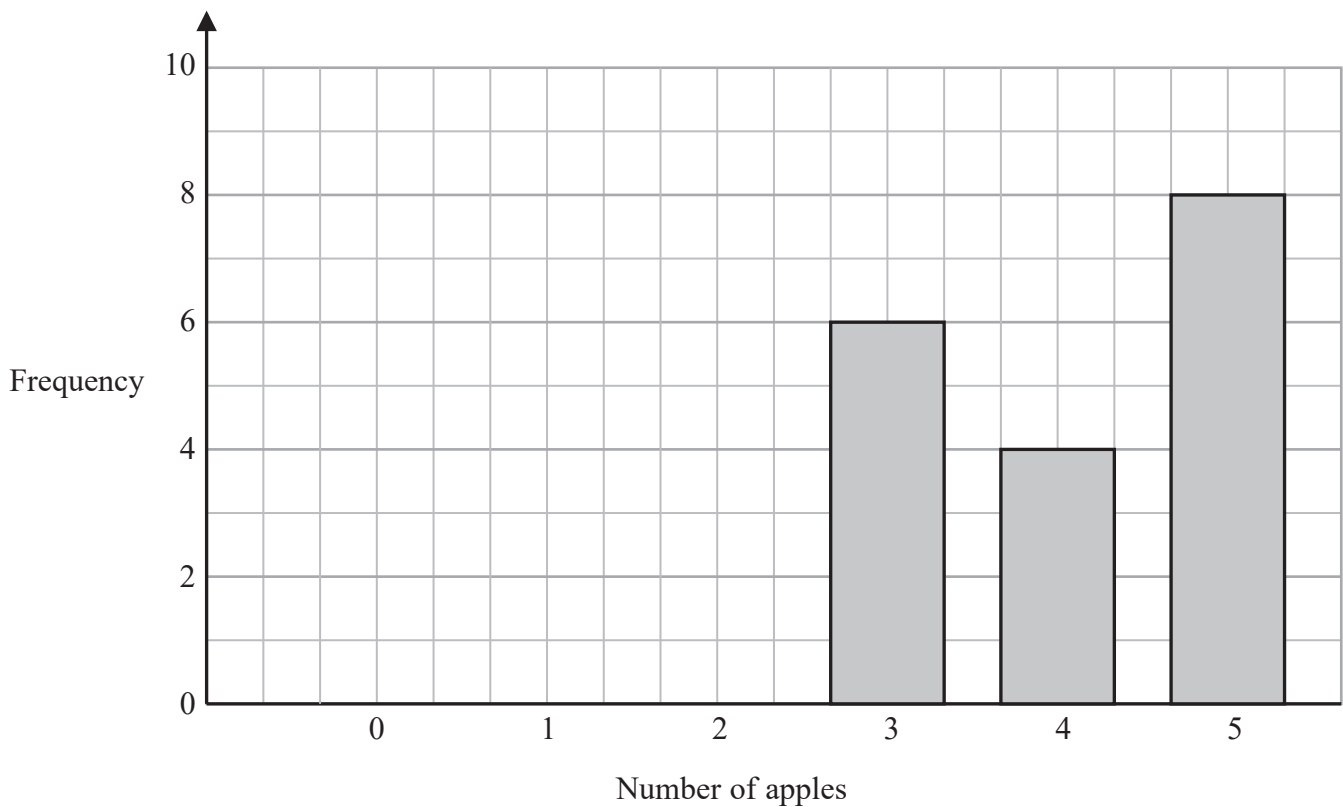
5 2 3 5 0 3 2  
 3 5 3 1 4 2 5  
 2 3 5 4 5 1 0  
 4 0 2 5 3 5 4

- (a) Complete the frequency table for these results.

| Number of apples | Frequency |
|------------------|-----------|
| 0                |           |
| 1                |           |
| 2                |           |
| 3                | 6         |
| 4                | 4         |
| 5                | 8         |

(2)

- (b) Complete the bar chart.



(2)



Marina picks at random one of these 28 friends.

(c) Find the probability that this friend ate 3 apples last week.

(2)

(Total for Question 4 is 6 marks)

5 Here is a solid prism made from centimetre cubes.

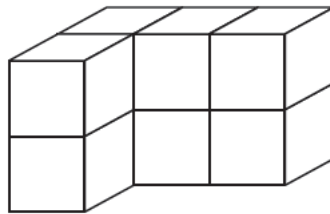
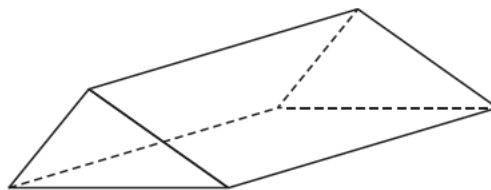


Diagram **NOT**  
accurately drawn

(a) Find the volume of the prism.

(1)  $\text{cm}^3$

Here is a 3-D shape.



(b) (i) How many faces has this shape?

(ii) How many edges has this shape?

(2)

(Total for Question 5 is 3 marks)



6 Here are the first five terms of a number sequence.

1      3      5      7      9

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

(1)

(ii) Find the difference between the 17th term of the sequence and the 15th term of the sequence.

(2)

Here are the first five square numbers.

1      4      9      16      25

(b) (i) Write down the next square number.

(1)

(ii) Work out the 20th square number.

(1)

Here are the first six prime numbers.

2      3      5      7      11      13

(c) Write down the next prime number.

(1)

(Total for Question 6 is 6 marks)

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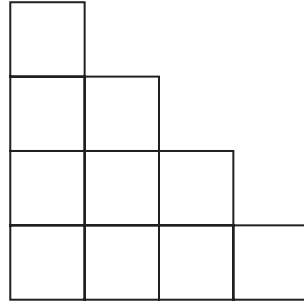
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7 Here is a shape made of squares.



(a) Shade 30% of the shape.

(1)

(b) Write 30% as a decimal.

(1)

(c) Work out  $\frac{15}{25}$  as a percentage.

%

(2)

Here is a list of five fractions.

$$\frac{1}{2} \quad \frac{11}{24} \quad \frac{4}{9} \quad \frac{19}{36} \quad \frac{35}{72}$$

(d) (i) Find the smallest fraction in the list.

(2)

(ii) Find the largest fraction in the list.

(1)

(Total for Question 7 is 7 marks)





- 9 In a game, players can win points and lose points.  
The table shows the number of points each of three players have at the end of the game.

|                         | Angelo | Carmen | Marco | Total |
|-------------------------|--------|--------|-------|-------|
| <b>Number of points</b> | -12    | 13     | -5    |       |

- (a) Complete the table.

(1)

At the end of the game, Rosa has 14 more points than Angelo.

- (b) How many points does Rosa have?

(1)

At the end of the game, Carmen has 21 points more than Sofia.

- (c) How many points does Sofia have?

(1)

(Total for Question 9 is 3 marks)

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10 (a) Find 25% of 10000

(2)

(b) Write  $1000 \times 1000 \times 1000$  as a power of 10

(1)

(c) Find the cube root of  $100 \times 100 \times 100$

(1)

(Total for Question 10 is 4 marks)

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11 Lucas and Lily each have one 10 cent coin, one 20 cent coin and one 50 cent coin.

Lucas is going to choose at random one of his three coins and place it on a desk.  
Lily is going to choose at random one of her three coins and place it on the desk.

(a) Complete the table below to show all the possible pairs of coins that could be on the desk.

|              |    |    |    |    |  |
|--------------|----|----|----|----|--|
| <b>Lucas</b> | 10 | 10 | 10 | 20 |  |
| <b>Lily</b>  | 10 | 20 | 50 | 10 |  |

(2)

(b) Find the probability that the total value of the two coins on the desk will be 60 cents.

(2)

(Total for Question 11 is 4 marks)

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12 Here is a kite.

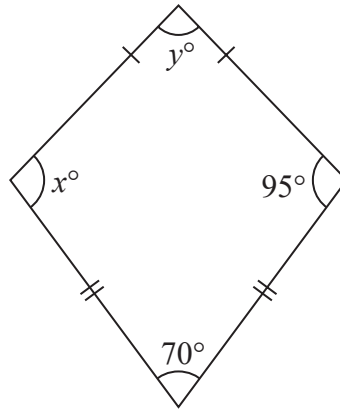


Diagram **NOT**  
accurately drawn

(a) Write down the value of  $x$ .

$$x = \quad (1)$$

(b) Work out the value of  $y$ .

$$y = \quad (2)$$

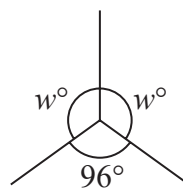


Diagram **NOT**  
accurately drawn

(c) Work out the value of  $w$ .

$$w = \quad (2)$$

(Total for Question 12 is 5 marks)

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- 13 The number machine can be used to change a temperature in degrees Celsius to a temperature in degrees Fahrenheit.



- (a) Change a temperature of 20 degrees Celsius to a temperature in degrees Fahrenheit.

degrees Fahrenheit  
(2)

- (b) Change a temperature of 77 degrees Fahrenheit to a temperature in degrees Celsius.

degrees Celsius  
(2)

(Total for Question 13 is 4 marks)

- 14 When a drawing pin is dropped onto the floor, it can land either point up or point down. The probability that it will land point up is 0.43

- (a) Find the probability that it will land point down.

(2)

The drawing pin is dropped onto the floor 200 times.

- (b) Work out an estimate for the number of times that the drawing pin will land point up.

(2)

(Total for Question 14 is 4 marks)



15 The table gives information about the ingredients needed to make 20 cookies.

| Ingredient | Weight (grams) |
|------------|----------------|
| Butter     | 125            |
| Sugar      | 100            |
| Flour      | 240            |
| Nuts       | 75             |

(a) Work out the weight of flour needed to make 30 of these cookies.

(2) grams

Nusret is making some of these cookies.  
He uses 150 grams of butter.

(b) Work out the weight of sugar he needs.

(2) grams

(c) Using the information given in the table, write down the ratio of the weight of butter to the weight of nuts.

Give your answer in the form  $1:n$

1: (2)

(Total for Question 15 is 6 marks)

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16 The diagram shows the positions of points  $A$ ,  $B$ ,  $C$  and  $D$  on a map.

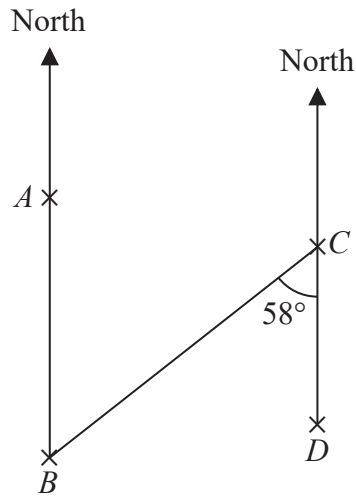


Diagram **NOT**  
accurately drawn

$A$  is due north of  $B$ .  
 $D$  is due south of  $C$ .  
 Angle  $BCD = 58^\circ$

(a) (i) Write down the size of angle  $ABC$ .

(ii) Give a reason for your answer.

(2)

(b) Find the bearing of  $B$  from  $C$ .

(2)

(Total for Question 16 is 4 marks)



17 (a) Solve  $\frac{a}{4} = 8$

$a =$  (1)

(b) Solve  $2e - 7 = 15$

$e =$  (2)

(c) Expand  $y(3x + y)$

(2)

$f = g^2 - 4h$

(d) Find the value of  $f$  when  $g = 6$  and  $h = -5$

$f =$  (2)

(e) Solve the inequality  $8w + 7 < 41$

(2)

(Total for Question 17 is 9 marks)

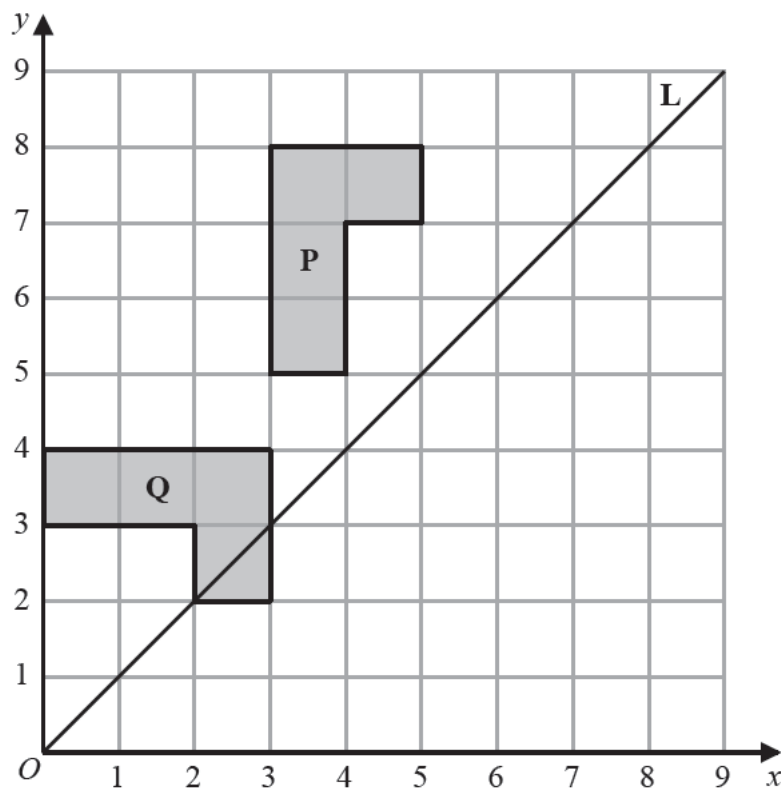
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18 The diagram shows a shape **P**, a shape **Q** and a line **L**.



(a) Reflect shape **P** in the line **L**.

(2)

(b) Describe fully the single transformation that maps shape **P** onto shape **Q**.

(3)

(Total for Question 18 is 5 marks)



19 The table gives information about the examination scores of 30 students.

| Score    | Frequency |
|----------|-----------|
| 1 – 20   | 1         |
| 21 – 40  | 5         |
| 41 – 60  | 8         |
| 61 – 80  | 10        |
| 81 – 100 | 6         |

Work out an estimate for the mean score of the 30 students.

(Total for Question 19 is 4 marks)

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20 The diagram shows a rectangle  $ABCD$ .

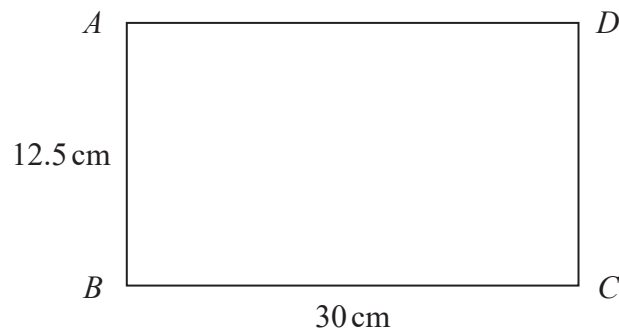


Diagram **NOT**  
accurately drawn

Work out the length of  $AC$ .

cm

(Total for Question 20 is 3 marks)



- 21 (a) Express 980 as a product of powers of its prime factors.  
Show your working clearly.

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(b) Simplify  $\frac{3^4 \times 3^7}{3^5}$

Give your answer as a single power of 3

(3)

(2)

(Total for Question 21 is 5 marks)



22 Solve

$$y = 3x$$
$$7x + y = 25$$

Show clear algebraic working.

$$x =$$

$$y =$$

(Total for Question 22 is 3 marks)

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**TOTAL FOR PAPER IS 100 MARKS**



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