Total Marks

Mathematics A

Paper 1F
(Calculator)
Foundation Tier

Tuesday 19 May 2020 – Morning

Time: 2 hours plus your additional time allowance.

In the boxes below, write your name, centre number and candidate number.

Surname	
Other names	
Centre Number	
Candidate Number	

Y62650A

Pearson

YOU MUST HAVE

Ruler, protractor, compasses, writing and drawing equipment, calculator. Tracing paper may be used.

YOU WILL BE GIVEN

Diagram Book
Formulae Pages

Turn over

INSTRUCTIONS

Answer ALL questions.

Without sufficient working, correct answers may be awarded no marks.

Answer the questions in the spaces provided in this Question Paper or on the separate diagrams – there may be more space than you need.

CALCULATORS MAY BE USED.

You must NOT write anything on the Formulae Pages. Anything you write on the Formulae Pages 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.

There may be spare copies of some diagrams.

You may be provided with models for Question 3(a) and Questions 3(b) and 3(c)

You may be provided with shapes for Question 13(a) and Question 13(b)

ADVICE

Read each question carefully before you start to answer it.

Check your answers if you have time at the end.

Answer ALL TWENTY THREE questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

1. Look at the table for Question 1 in the Diagram Book.

It gives information about the amount of crude oil, in barrels, produced per day by each of five countries.

(a) Write down the name of the country that produced the least number of barrels of crude oil.
(1 mark)

_____

(continued on the next page)

1. continued.

(b) Work out the difference between the number of barrels of crude oil produced by Vietnam and the number of barrels of crude oil produced by Australia.

(1 mark)

_____ barrels

(continued on the next page)

1. **continued.**

Thailand produced 248 200 barrels of crude oil.

(c) **Write 248 200 correct to the nearest thousand.**

(1 mark)

_____

(Total for Question 1 is 3 marks)

2. **Look at the diagram for Question 2 in the Diagram Book.**

   It shows an incomplete pictogram.

   The pictogram shows information about the number of books sold in a shop each day from Monday to Thursday last week.

   (a) **How many books were sold on Wednesday last week?**

   (1 mark)

   _____

Turn over

2. continued.

35 books were sold in the shop on Friday last week.

(b) Show this information on the pictogram.

(1 mark)

(continued on the next page)

2. continued.

Last week

some books were sold in the shop on Saturday

no books were sold in the shop on Sunday

a total of **500** books were sold in the shop.

(c) Work out the number of books that were sold in the shop on Saturday last week.

(3 marks)

Answer space is on the next page.

2. **(c)** **continued.**

_____

(Total for Question 2 is 5 marks)

3. **Look at the diagram for Question 3(a) in the Diagram Book.**

    You may be provided with a model.

    (a) **Write down the mathematical name of the 3–D shape.**

    (1 mark)

    _____

(continued on the next page)

3. **continued.**

Look at the diagram for Questions 3(b) and 3(c) in the Diagram Book.

You may be provided with a model. They are NOT accurate.

They show a solid cuboid 20 cm long, 8 cm wide and 11 cm high.

(continued on the next page)

Turn over

3. continued.

(b) (i) How many faces has the cuboid?

_____

(ii) How many vertices has the cuboid?

(2 marks)

_____

(continued on the next page)

3. continued.

(c) Work out the volume of the cuboid.

(2 marks)

_____ cm^3

(Total for Question 3 is 5 marks)

4.   Look at the diagram for Question 4 in the Diagram Book.

It shows a polygon with five sides.

(a)   Write down the mathematical name of a polygon with five sides.

(1 mark)

_____

Turn over

4.   continued.

(b) Measure the size of the angle

marked X

(1 mark)

_____ °

Two sides of the polygon are parallel.

(c) On the polygon, mark this pair of

parallel lines.

(1 mark)

(continued on the next page)

Turn over

4.   continued.

Look at the diagrams for

Question 4(d) in the Diagram Book.

They are NOT accurately drawn.

They show two triangles.

(d) Are triangle **A** and triangle **B**

similar triangles?

You must give a reason for your

answer.

(1 mark)

Answer lines continue on the

next page.

_____

_____

4. **(d)** **continued.**

_____

_____

_____

(Total for Question 4 is 4 marks)

5. Matt buys a notebook and some pencils.

The notebook costs $2·35
Each pencil costs $0·74

Matt has a total of $20 to spend on the notebook and the pencils.
He buys the greatest number of pencils that he can.

Work out how many pencils he buys.
(3 marks)
Answer space continues on the next page.

5. **continued.**

(Total for Question 5 is 3 marks)

6.   (a) Write

$$\frac{24}{40}$$ as a fraction in its simplest

form.

(2 marks)

_____

(continued on the next page)

6.   continued.

   (b) Write

$$\frac{1}{5}$$ as a decimal.

   (1 mark)

_____

(continued on the next page)

6. continued.

There are only blue bricks and white bricks in a box.

The ratio of the number of blue bricks to the number of white bricks is $3:7$

(c) What fraction of the bricks in the box are blue bricks?

(1 mark)

_____

Turn over

6. continued.

(d) Show that

$$\frac{3}{8} + \frac{1}{24} = \frac{5}{12}$$

(2 marks)

Answer space continues on the next page.

6. **(d)** **continued.**

(continued on the next page)

6.   continued.

There are **280** counters in a bag.

$\frac{1}{2}$ of the counters are red.

$\frac{2}{5}$ of the counters are yellow.

The rest of the counters are green.

(e)   Work out the number of green

counters in the bag.

(3 marks)

Answer space continues on the

next page.

6. **(e)** **continued.**

(Total for Question 6 is 9 marks)

7.   (a)   Simplify

$5p \times q$

(1 mark)

_____

(continued on the next page)

7.   continued.

   (b) Solve

   $$t + 5 = 12$$

   (1 mark)

   t = _____

7. **continued.**

    (c) Solve

$$9y = 36$$

    (1 mark)

        y = _____

(continued on the next page)

Turn over

7.   continued.

(d) Simplify

$$8k + 5m - 2k + 6m$$

(2 marks)

_____

(continued on the next page)

7. **continued.**

(e) **Expand**

4(3s + 1)

(1 mark)

_____

(Total for Question 7 is 6 marks)

8.   Look at the table for Question 8 in the Diagram Book.

It shows an incomplete two–way table.

Pavel asked **60** people at an airport where they came from.

All of the **60** people came from Europe or Africa or Asia.

9 people came from Africa.

14 females came from Europe.

3 males came from Africa.

16 of the **29** males came from Asia.

(continued on the next page)

8. **continued.**

Using this information, complete the two–way table in the Diagram Book. There are six spaces to fill.

(Total for Question 8 is 4 marks)

9. Given that

s = 4

t = 7

(a) Work out the value of

3s + 2t

(2 marks)

_____

Turn over

9. continued.

Given that

$p = -6$

$m = -2$

(b) Work out the value of

$$2p^2 + 3m$$

(2 marks)

_____

Turn over

9. continued.

There are **6** eggs in a small box of eggs.

There are **12** eggs in a large box of eggs.

Alex buys **x** small boxes of eggs and **y** large boxes of eggs.

He buys a total of **T** eggs.

(c) Write down a formula for **T** in terms of **x** and **y**

(3 marks)

Answer space continues on the next page.

Turn over

9. **(c)** **continued.**

(Total for Question 9 is 7 marks)

10. (a)   Use your calculator to work out the value of

$$\frac{67 \cdot 8 + 4 \cdot 6^2}{\sqrt{56}}$$

Write down all the figures on your calculator display.

(2 marks)

_____

Turn over

10. continued.

(b) Give your answer to part (a) correct to **2** significant figures.

(1 mark)

_____

(Total for Question 10 is 3 marks)

11. A circle has radius **18 cm**

Work out the circumference of the circle.

Give your answer correct to

3 significant figures.

(2 marks)

Answer space continues on the next page.

11. **continued.**

_____ **cm**

(Total for Question 11 is 2 marks)

12. Gavin bought **3** pairs of jeans in the USA.

He paid a TOTAL of **$72**

Gavin sold the **3** pairs of jeans in England.

He sold each pair of jeans for **£34·50**

£1 = $1·34

Work out Gavin's percentage profit.

Give your answer correct to the nearest whole number.

(4 marks)

Answer space is on the next two pages.

Turn over

12. continued.

12. continued.

_____%

(Total for Question 12 is 4 marks)

13. Look at the diagram for Question 13(a) in the Diagram Book. It shows a triangle on a grid.

(a) On the grid, reflect the shaded triangle in the line with equation

$y = 2$

A cut out shape may be available if you wish to use it.

(2 marks)

(continued on the next page)

13. **continued.**

Look at the diagram for Question 13(b) in the Diagram Book. It shows triangle **A** and triangle **B** on a grid.

(b) Describe fully the single transformation that maps triangle **A** onto triangle **B**

A cut out shape may be available if you wish to use it.

(3 marks)

Answer lines continue on the next page.

13. (b) continued.

_____

_____

_____

(Total for Question 13 is 5 marks)

14. Look at the diagram for Question 14 in the Diagram Book.

It shows a Venn diagram.

The numbers from **1** to **14** are shown in the Venn diagram.

(a) List the members of the set $A \cap B$

(1 mark)

_____

(continued on the next page)

14. continued.

(b) **List the members of the set B′**

(1 mark)

_____

(continued on the next page)

14. continued.

A number is picked at random from the numbers in the Venn diagram.

(c) Find the probability that this number is in set **A** but is NOT in set **B**

(2 marks)

_____

(Total for Question 14 is 4 marks)

15. Toy cars are made in a factory.

The toy cars are made for **15** hours each day.

5 toy cars are made every **12** seconds.

For the toy cars made each day, the probability of a toy car being faulty is **0·002**

Work out an estimate of the number of faulty toy cars that are made each day.

(4 marks)

Answer space is on the next two pages.

15. continued.

15. continued.

_____

(Total for Question 15 is 4 marks)

16. Look at the diagram for Question 16 in the Diagram Book.

It shows a grid.

Draw the graph of

$y = 7 - 4x$ for values of x from -2 to 3

(Total for Question 16 is 3 marks)

17. Here is a list of six numbers written in order of size.

$$4 \quad 7 \quad x \quad 10 \quad y \quad y$$

The numbers have

a median of **9**

a mean of **11**

Find the value of x and the value of y

(4 marks)

Answer space continues on the next two pages.

17. continued.

17. continued.

x = _____

y = _____

(Total for Question 17 is 4 marks)

18. (a) Write

$$5 \cdot 7 \times 10^{-3}$$ **as an ordinary**

number.

(1 mark)

_____

(b) Write

800 000 in standard form.

(1 mark)

_____

(continued on the next page)

Turn over

18. continued.

(c) Work out

$$\frac{3 \times 10^5 - 2 \cdot 7 \times 10^4}{6 \times 10^{-2}}$$

(2 marks)

_____

(Total for Question 18 is 4 marks)

19. A rocket travelled **100 km** at an average speed of **28 440 km/h**

Work out how long it took the rocket to travel the **100 km**

Give your answer in seconds, correct to the nearest second.

(3 marks)

Answer space continues on the next page.

19. continued.

_____ **seconds**

(Total for Question 19 is 3 marks)

20. (a) Solve

$$5(4 - x) = 7 - 3x$$

Show clear algebraic working.

(3 marks)

Answer space continues on the next page.

20. (a) continued.

$X = $ _____

(continued on the next page)

20. continued.

(b) Factorise fully

$$16m^3n^3 + 24m^2n^5$$

(2 marks)

_____

(continued on the next page)

20. continued.

(c) (i) Factorise

$$y^2 - 2y - 48$$

(2 marks)

_____

(continued on the next page)

Turn over

20. (c) continued.

   (ii) **Hence, solve**

$$y^2 - 2y - 48 = 0$$

(1 mark)

(Total for Question 20 is 8 marks)

21. Look at the diagram for Question 21 in the Diagram Book.

It is NOT accurately drawn.

It shows a **10**–sided polygon.

Nine interior angles are labelled

148°, 150°, 168°, 134°, 125°, 125°, 134°, 168°, 150°

One exterior angle is marked **x°**

Work out the value of **x**

(4 marks)

Answer space continues on the next page.

21. continued.

X = _____

(Total for Question 21 is 4 marks)

22. In a sale, normal prices are reduced by **20%**

A bag costs **1080** rupees in the sale.

Work out the normal price of the bag. (3 marks)

Answer space continues on the next page.

22. continued.

_____ **rupees**

(Total for Question 22 is 3 marks)

Turn over

23. **Given that**

$$P = 2 \times 3^{43}$$

$$Q = 16 \times 3^{37}$$

(a) **Find the highest common factor (HCF) of P and Q**

(1 mark)

Answer space continues on the next page.

23. continued.

_____

(continued on the next page)

23. continued.

(b) Express the number **P ✕ Q** as a product of powers of its prime factors.

Give your answer in its simplest form.

(2 marks)

Answer space continues on the next page.

23. (b) continued.

(Total for Question 23 is 3 marks)

TOTAL FOR PAPER IS 100 MARKS

END OF PAPER