

Please check the examination details below before entering your candidate information

Candidate surname

Other names

Centre Number

Candidate Number

Pi Academy

Predicted Papers - Set 2

Morning (Time: 1 hour 30 minutes)

Mathematics

Paper 1 (Non-Calculator)

Foundation Tier

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.*
- You must **show all your working**.
- Diagrams are **NOT** accurately drawn, unless otherwise indicated.
- **Calculators may not be used.**



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.

Turn over ►



Answer ALL questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

- 1** Write 0.063 as a fraction.

.....

(Total for Question 1 is 1 mark)

- 2** Write the number 8.4 million in figures.

.....

(Total for Question 2 is 1 mark)

- 3** Nellie's motorbike can hold 188 pints of fuel. How many gallons is this? (1 gallon = 8 pints)

..... gallons

(Total for Question 3 is 1 mark)

- 4** Simplify 4.8 : 1.08 as far as possible.

.....

(Total for Question 4 is 1 mark)

5 Here is a set of numbers.

5 3 8 5 7 6 1

Write down the value of

(a) Mean

.....

(1)

(b) Median

.....

(1)

(c) Mode

.....

(1)

(d) Range

.....

(1)

(Total for Question 5 is 4 marks)

6 (a) Simplify $\frac{a \times a}{b \times b}$

.....

(1)

(b) Solve $\frac{10}{3}x = 15$

.....

(1)

(Total for Question 6 is 2 marks)

7 Give an example of an obtuse angle.

.....

(Total for Question 7 is 1 mark)

8 Find 31% of £60.

£

(Total for Question 8 is 2 marks)

9 Jo, Joanne and Jessie share £8400 in the ratio 1 : 2 : 4. How much does Joanne get?

£

(Total for Question 9 is 2 marks)

10 A spinner has different numbers of black, grey, blue and white sections.

Colour	Black	Grey	Blue	White
Probability	0.2	0.4	0.3	

(a) What is the probability of spinning White?

.....

(1)

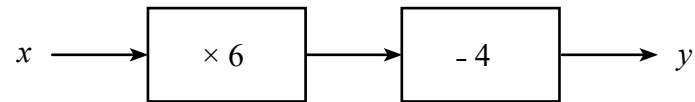
(b) What is the probability of not spinning Blue?

.....

(1)

(Total for Question 10 is 2 marks)

11 This is a function machine.



(a) Find the value of y if x is 5.

.....

(1)

(b) Find the value of x if y is 14.

.....

(2)

(Total for Question 11 is 3 marks)

12 John says

“Multiplying a vector by a positive number changes the vector’s size and direction.”

Is John correct?

Give a reason for your answer.

.....

.....

(Total for Question 12 is 2 marks)

13 Write $\frac{2}{5}$ as a decimal.

.....

(Total for Question 13 is 1 mark)

14 Sam goes to maths tuition.

The cost of his tuition fees increases by 15% to £184.

Work out the cost of his tuition fees before this increase.

£

(Total for Question 14 is 2 marks)

15 7 tins of meat have a total weight of 3780 grams.

5 tins of meat and 4 packets of meat have a total weight of 3740 grams.

Work out the total weight of 3 tins of meat and 3 packets of meat.

..... kg

(Total for Question 15 is 3 marks)

16 The table shows some information about the colours of cars parked in a car park.

Colours	Frequency
Grey	18
Black	10
Red	36
Blue	8

What fraction of the cars are blue?

Give your answer in the simplest form.

.....

(Total for Question 16 is 2 marks)

17 Three packs of rice are available in the supermarket.

Pack A

$\frac{2}{5}$ of 10 kg for £ 8

Pack B

60% of 5 kg for £ 5

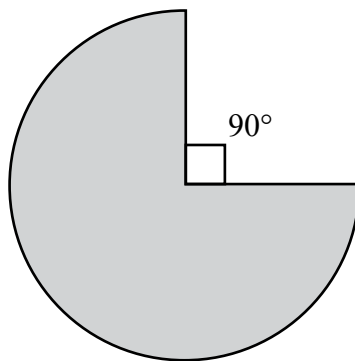
Pack C

$\frac{1}{8}$ of 4 kg for £ 1.5

Which pack offers the best value for money.
You must show your working.

.....
(Total for Question 17 is 4 marks)

18 In the diagram shown below, a sector with angle 90° has been cut out of a circle with radius 5 cm.



(a) Work out the arc length of the shaded sector.

..... cm

(2)

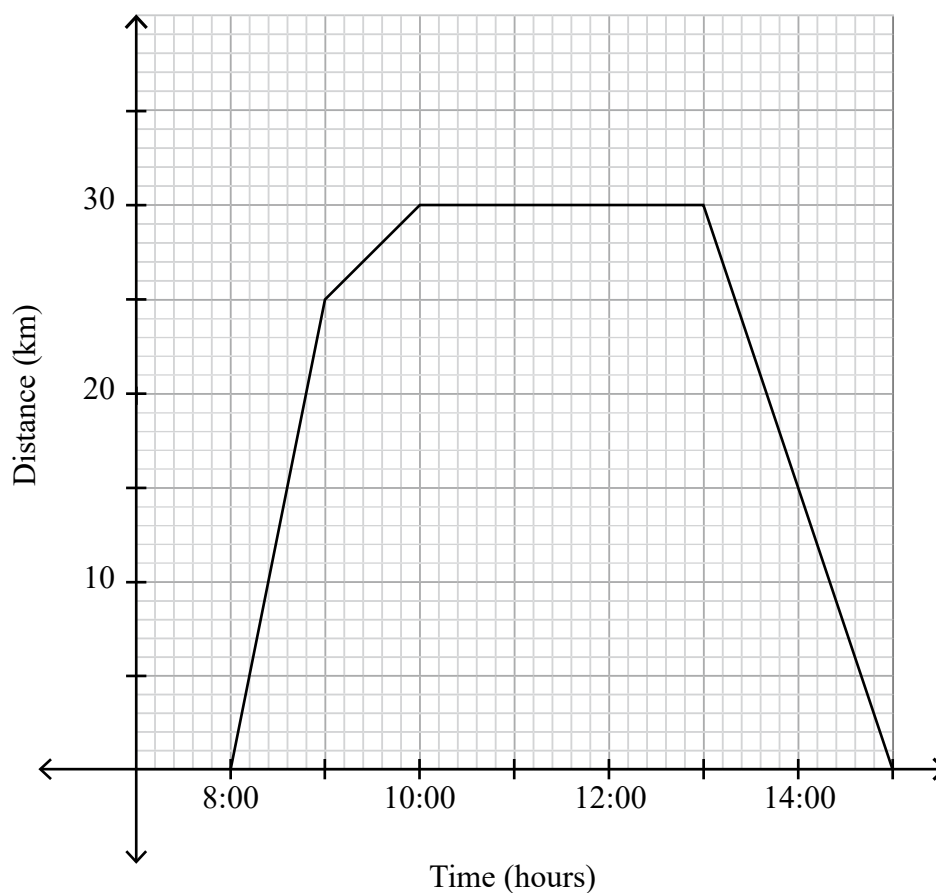
(b) Work out the area of the shaded sector.
Give your answer in terms of π .

..... cm^2

(2)

(Total for Question 18 is 4 marks)

19 Harry went out for a picnic with his friends. The following graph shows their journey.



(a) How far was the picnic spot?

..... km

(1)

(b) What was their average speed while coming back from the picnic?

..... km/h

(1)

(Total for Question 19 is 2 marks)

20 (a) Write 0.00008934 in standard form.

.....

(1)

(b) Write 7.13×10^5 as an ordinary number.

.....

(1)

The diameter of Uranus is 5.1×10^4 km.

The diameter of Mercury is 4.8×10^3 km.

(c) Calculate the difference between the diameter of Uranus and the diameter of Mercury.
Give your answer in standard form.

..... km

(2)

(Total for Question 20 is 4 marks)

- 21** Juno gets paid at the same hourly rate whenever he works.
In the first week of March, Juno worked for 35 hours and got paid £630.
In the next 3 weeks of March, he worked for 15 hours in total.

(a) How much will he get paid in total for the 4 weeks he worked in March?

£

(2)

(b) How many more hours should he have worked to get £1134?

.....

(2)

(Total for Question 21 is 4 marks)

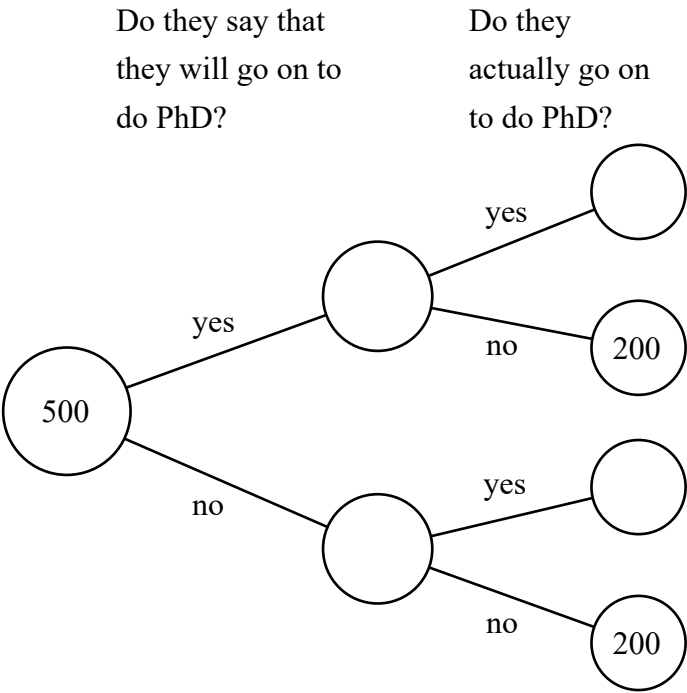
22 500 graduates were asked if they would go on to do a PhD in their area of specialisation.

280 of them said they would go on to do PhD

80 of the graduates who said they do actually did.

20 of the graduates who said they wouldn't do actually did.

(a) Complete the frequency tree below



(2)

(b) A graduate who said they wouldn't do a PhD is chosen at random. What is the probability that they actually did a PhD?

.....

(1)

(Total for Question 22 is 3 marks)

23

$$\mathbf{A} = 2^1 \times 3^3 \times 5^2 \quad \mathbf{B} = 2^1 \times 3^1 \times 5^2 \times 7^1$$

(a) Write down the highest common factor (HCF) of **A** and **B**.

.....

(1)

(b) Find the lowest common multiple (LCM) of **A** and **B**.

.....

(2)

(Total for Question 23 is 3 marks)

24 Polly and Mona want to get a train to Southall.

Uxbridge	09:30	10:30	11:50	13:10
Hayes	09:47	10:47	12:07	13:27
Southall	09:55	10:55	12:15	13:35
West Ealing	10:05	11:05	12:25	13:45
Ealing Broadway	10:11	11:11	12:31	13:51

Use the timetable to answer the following questions:

(a) If they leave their house at 10 AM and it takes them 15 minutes to walk to the Uxbridge station, what time at the earliest can they reach Southall?

.....

(1)

(b) Mona wants to attend an event in Ealing Broadway at 12:55 and it will take her 20 minutes to walk to the venue from the station. What is the latest that she can leave her house in Uxbridge to attend the event?

.....

(2)

(Total for Question 24 is 3 marks)

25 A regular polygon has interior angles of 135° .

(a) Find the measure of exterior angles of this polygon.

.....
(1)

(b) What is the name of this polygon?

.....
(1)

(c) Find the sum of interior angles of this polygon.

.....
(2)

(Total for Question 25 is 4 marks)

26 A fort has 300 men and sufficient food provisions for 90 days.

(a) For how many days it can cater to 180 men?

..... days
(2)

(b) After 20 days, 50 men left the fort. How long would the food last at the same rate?

..... days
(2)

(c) If the food needs to last for 100 days, how many men cannot be accommodated on the fort?

.....
(2)

(Total for Question 26 is 6 marks)

27 Solve the following equations.

(a) $24y = 13 - 2y$

$y = \dots\dots\dots$

(2)

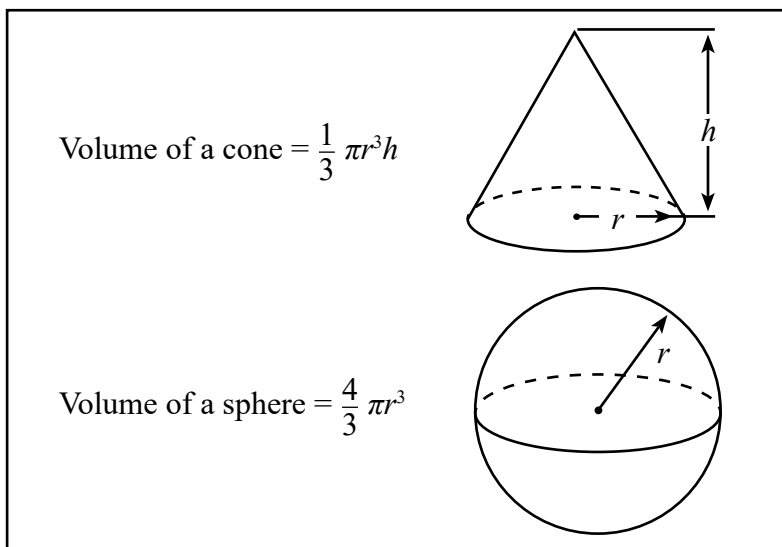
(b) $z + z + z = z + 12$

$z = \dots\dots\dots$

(2)

(Total for Question 27 is 4 marks)

- 28** A sphere has a radius of 5 cm. A cone has a radius of 4 cm and a height of **h** cm. If the volume of the cone is equal to the volume of the sphere, work out the height of the cone **h**.



..... cm

(Total for Question 28 is 3 marks)

29 A number y is rounded to 3 significant figures.

The result is 0.875

Write down the error interval for y .

..... $\leq y <$

(Total for Question 29 is 2 marks)

30 The first four terms of a sequence are 3, 7, 13, 21, ...

(a) Find the 6th term of the sequence.

.....

(2)

(b) Is 79 a term in this sequence? Give a reason for your answer.

.....

.....

(2)

(Total for Question 30 is 4 marks)

TOTAL FOR PAPER IS 80 MARKS