

Please check the examination details below before entering your candidate information

Candidate surname

Other names

Centre Number

Candidate Number

Pi Academy

Predicted Papers - Set 1

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** (a) Write 0.75 as a fraction.

.....

(1)

- (b) Write $\frac{9}{20}$ as a decimal.

.....

(1)

(Total for Question 1 is 2 marks)

- 2** Change 22500 metres to kilometres.

..... km

(Total for Question 2 is 1 mark)

- 3** (a) Simplify $14y - 28y + y^2$

.....

(1)

- (b) Simplify $z \times 2 \times 5 \times z$

.....

(1)

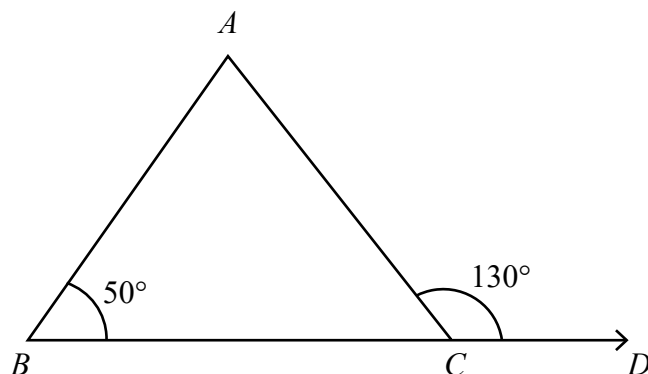
(c) Simplify $c \times d \times 4 + 2 \times c \times d$

.....

(1)

(Total for Question 3 is 3 marks)

4



(a) Work out the measure of angle ACB in the above figure.

.....°

(1)

(b) Is ABC an isosceles triangle? Give reasons for your answer.

.....

.....

(1)

(Total for Question 4 is 2 marks)

5 Here are 5 number cards.

2	3	6	4	7
---	---	---	---	---

(a) Write down the largest four-digit number that can be made using the number cards.

.....

(1)

(b) Arrange the cards to give the smallest possible answer to the sum.

		+		
--	--	---	--	--

.....

(1)

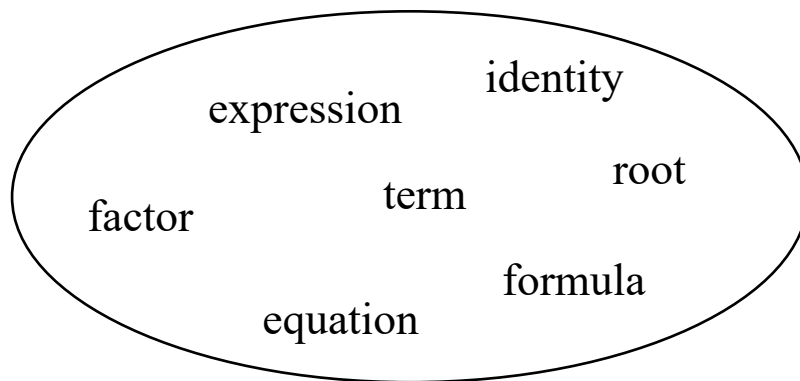
(Total for Question 5 is 2 marks)

6 Estimate the value of $(12.3 \div 3.67) - 0.81$

.....

(Total for Question 6 is 1 mark)

7 Select a word from the below list that completes the following statements.



(a) $y = 6$ is a of $y^2 - 36 = 0$

(1)

(b) $2x + 3y$ is an in $2x + 3y = 20$

(1)

(Total for Question 6 is 2 marks)

8 Work out how many of each item below were sold if:

(a) Leo spent £20 on balloons that cost £0.25 each.

.....

(2)

(b) Julia spent £3.75 on stickers that cost £0.15 each.

.....

(2)

(Total for Question 8 is 4 marks)

- 9 There are 4 kinds of marbles in a box.

The table shows the probability of selecting at random a grey marble.

Colour	Grey	Red	Blue	Orange
Probability	0.08			

The probability of selecting a blue marble to the probability of selecting a red marble is 5:1

The probability of selecting a blue marble is three times the probability of selecting an orange marble.

Complete the table.

(Total for Question 9 is 3 marks)

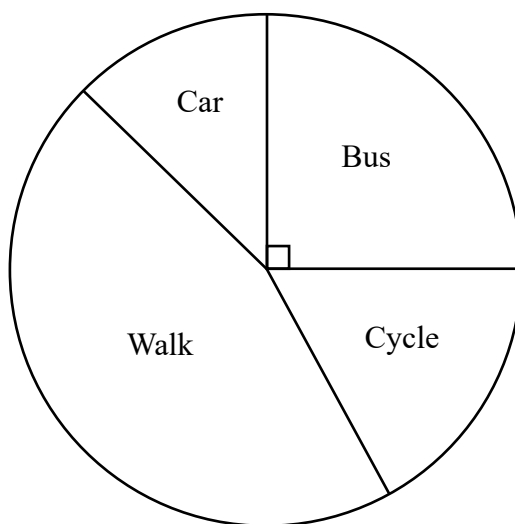
- 10 Janice, Jane and Ruth each played a game. Janice's score was five times Ruth's score. Jane's score was one-third of Janice's score.

Write down the ratio of Janice's score to Jane's score to Ruth's score.

.....

(Total for Question 10 is 2 marks)

- 11 Pam asked each student in his class how they travelled to school that day. She used the results to draw this pie chart.



- (a) How did most of the students travel to school?

.....

(1)

Pam asked a total of 52 students.

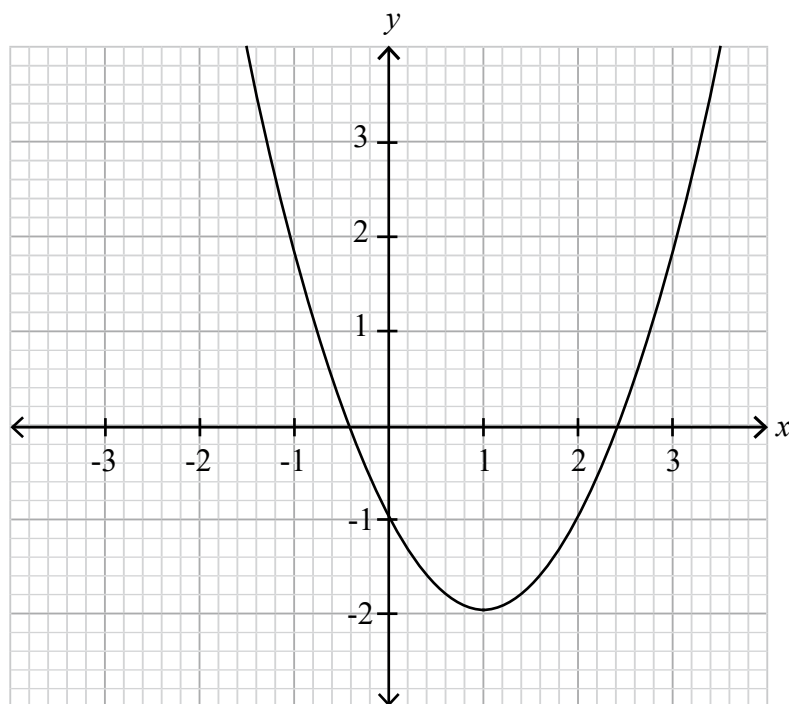
(b) Work out the number of students who took a bus to school.

.....

(1)

(Total for Question 11 is 2 marks)

12 Graph of $y = x^2 - 2x - 1$ is shown below.



(a) Write down the coordinates of the turning point of $y = x^2 - 2x - 1$

.....

(1)

(b) Estimate the roots of the equation $x^2 - 2x - 1 = 0$ using the graph.

.....

(2)

(Total for Question 12 is 3 marks)

13 It would take 150 minutes to fill a swimming pool using water from 6 taps.

(a) How many minutes will it take to fill the pool if only 4 of the taps are used?

..... minutes

(2)

(b) State one assumption you made in working out your answer to part (a).

.....

.....

(1)

(Total for Question 13 is 3 marks)

14 Peter and Mia each get paid a basic pay of £75 per day.

One day, Peter also gets a bonus of 30% of his basic pay. Mia also gets £21.50 in tips from customers.

Work out the difference between the total amounts of money that Peter and Mia each get.

£

(Total for Question 14 is 3 marks)

15 *X* and *Y* are two schools.

The table shows some information about the number of students of each school and the number of teachers of each school in 2010 and in 2020.

	School X		School Y	
	Number of students	Number of teachers	Number of students	Number of teachers
2010	1250	80	357	21
2020	1575	90	396	24

(a) Work out the percentage increase in the number of students from 2010 to 2020 for School *X*.

.....

(2)

(b) Which school had the most number of students per teacher in 2020, School *X* or School *Y*?
You must show how you get your answer.

.....

(3)

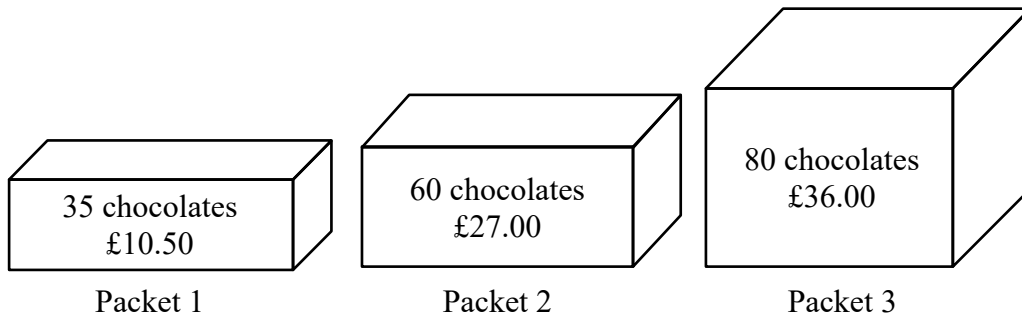
(Total for Question 15 is 5 marks)

16 Work out $8 \times (5 \div 4)$

.....

(Total for Question 16 is 1 mark)

17 Chocolates are available in three different packets.



Packet 1 has 35 chocolates which cost £10.50.

Packet 2 has 60 chocolates which cost £27.00.

Packet 3 has 80 chocolates which cost £36.00.

Which packet is the best value for money?

You must show your working.

.....
(Total for Question 17 is 3 marks)

18 A quadrilateral has two pairs of equal sides and one pair of equal angles.

(a) Identify and draw this quadrilateral.

.....

(2)

(b) Write down the possible number of line(s) of symmetry for the drawn quadrilateral.

.....

(1)

(Total for Question 18 is 3 marks)

19 (a) Solve $4x + 6 < 6x - 10$

.....

(2)

(b) c is an integer such that $2c > 6$ and $27 > 3c$.
Write down all the possible values of c .

.....

(2)

(Total for Question 19 is 4 marks)

20 Paul is going to use these instructions to make a milkshake.

Mix 5 parts of Strawberry Syrup
with 3 parts of milk

Paul thinks that he has 400 ml of strawberry syrup and 300 ml of milk.

(a) If Paul is correct, what is the greatest amount of milkshake he can make?

..... ml

(3)

Paul has 400 ml of strawberry syrup but he now only has 150 ml of milk.

(b) Does this affect the greatest amount of milkshake he can make? Give a reason for your answer.

.....
.....
(1)

(Total for Question 20 is 4 marks)

21 Work out 6^3

.....

(Total for Question 21 is 1 mark)

22 The table shows information about the number of children in a family.

Number of Children	Frequency
0	1
1	6
2	7
3	4
4	2

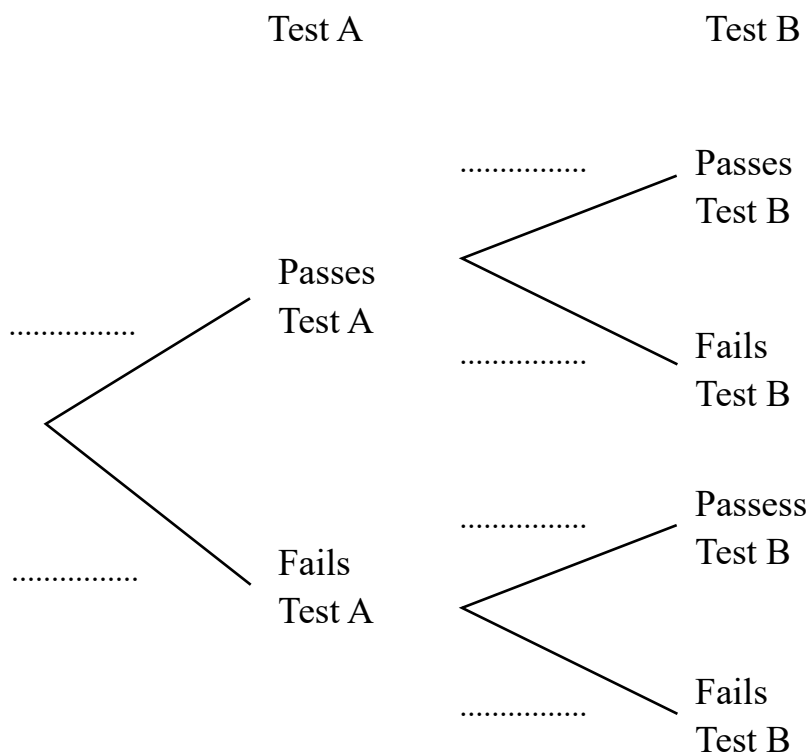
Work out the mean number of children per family.

.....

(Total for Question 22 is 2 marks)

- 23** In a school, students attempt two tests A and B. A student either passes or fails a test. The probability that the student passes test A is 0.6 and test B is 0.5.

(a) Complete the tree diagram.



(2)

(b) Show that the probability of passing at least one test is 0.8

(2)

(Total for Question 23 is 4 marks)

24 Solve the simultaneous equations

$$x + 4y = 20$$

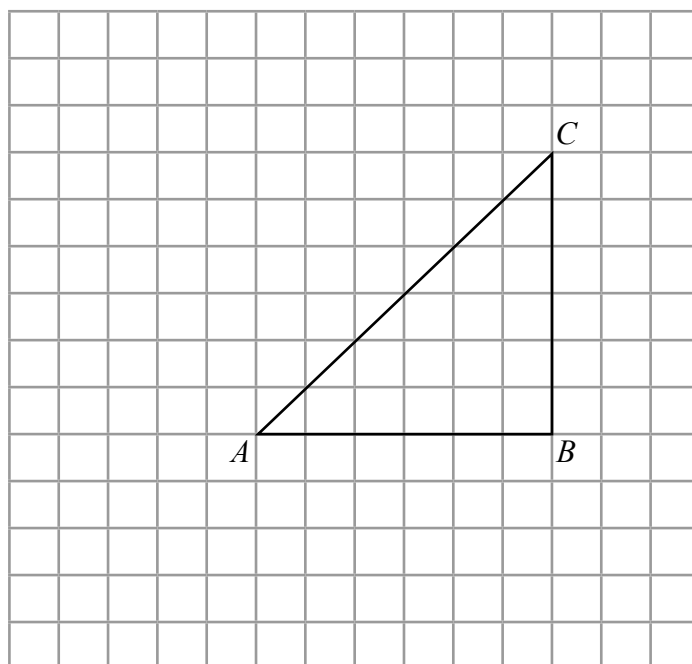
$$3y + 2x = 10$$

$$x = \dots\dots\dots$$

$$y = \dots\dots\dots$$

(Total for Question 24 is 3 marks)

25 Nicole drew a scale drawing of her cycling path on a centimetre-grid.



(a) Nicole cycles in a straight line from A to B and from B to C .

If the scale of her drawing is 1 cm to 10 m, work out the total distance travelled by Nicole.

..... m

(2)

(b) Nicole returns from point C to point A along the line CA . If ABC makes a right-angled triangle with angle $ABC = 90^\circ$, then work out the measure of angle CAB .

..... $^\circ$

(2)

(Total for Question 25 is 4 marks)

26 Write 378 as a product of its prime factors.

.....

(Total for Question 26 is 2 marks)

27 Find the vector that translates a shape $2a$ units up and $3b$ units left.

.....

(Total for Question 27 is 2 marks)

28 Solve $20 - 10z = -40$

$z =$

(Total for Question 28 is 2 marks)

29

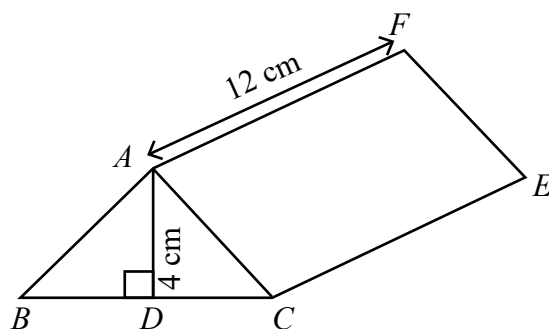
Wearing Glasses

1 out of 5 people in city Z is expected to wear glasses.

820 000 people live in the city Z.
How many of these people are expected to wear glasses?

.....

(Total for Question 29 is 2 marks)



- (a) If the volume of the triangular prism shown above is 192 cm^3 , work out the measure of the triangular base BC .

..... cm

(3)

- (b) If AD is the perpendicular bisector of BC , then work out the measure of angle ABC .

..... °

(2)

(Total for Question 30 is 5 marks)

TOTAL FOR PAPER IS 80 MARKS