ADA PINPOINT PACKS

35_to_61_Percent_Pinpoint_AI_Pack

Made for Grade2to3_Paper3

AO1,2_and_3

ALL_Strands

Calc_Only

Created by A.D.A:

Pinpoints Automatic Differention Algorithmn

Designed and Programmed by

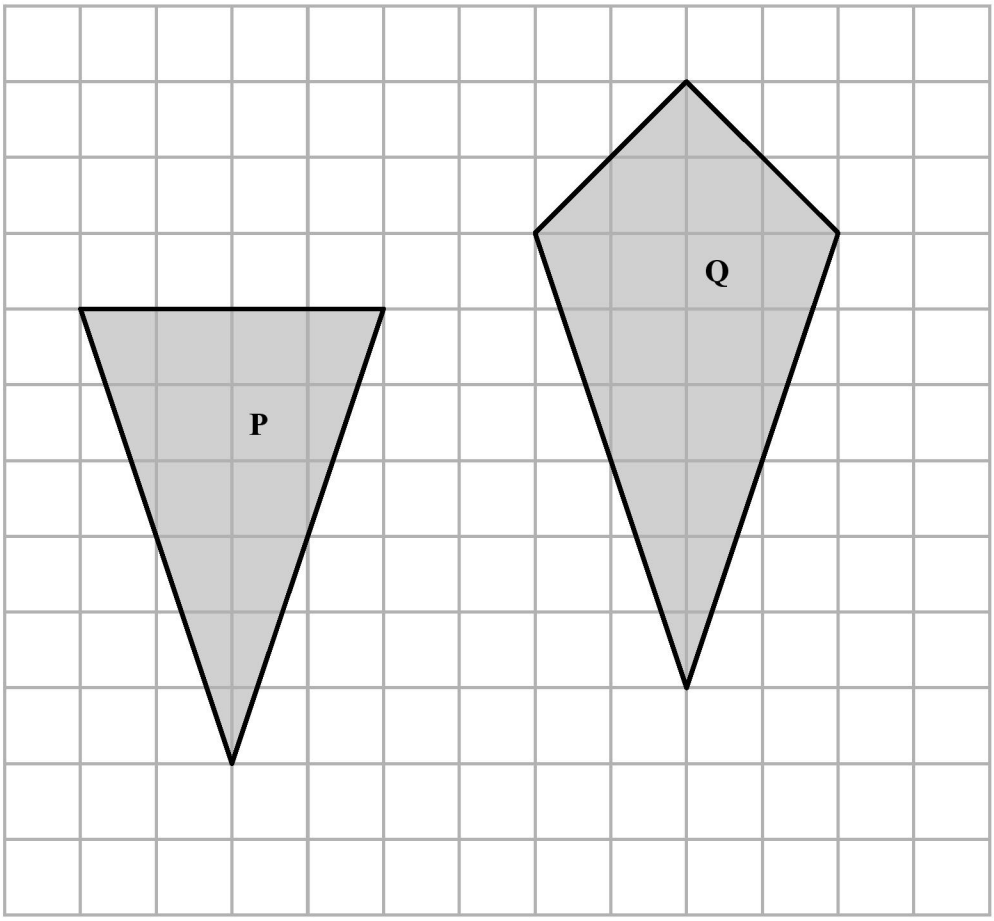
Tom Quilter, Anne Mcateer + Jon Hargreaves ... All maths teachers.

Question 1 (AO1): 65% of students got this right

5 Write $\frac{3}{5}$ as a percentage

Question 2 (AO1): 65% of students got this right

10 The diagram shows two shapes drawn on a centimetre grid.



(*b*) Write down the mathematical name of quadrilateral **Q**.

Question 3 (AO1): 64% of students got this right

11 The first three terms of a number pattern are 1 2 4

Hester says the first five terms of this number pattern are 1 2 4 8 16

(*a*) Write down the rule Hester could have used to get the 4th and 5th terms.

(*b*) Write down the 6th term of Hester's number pattern.

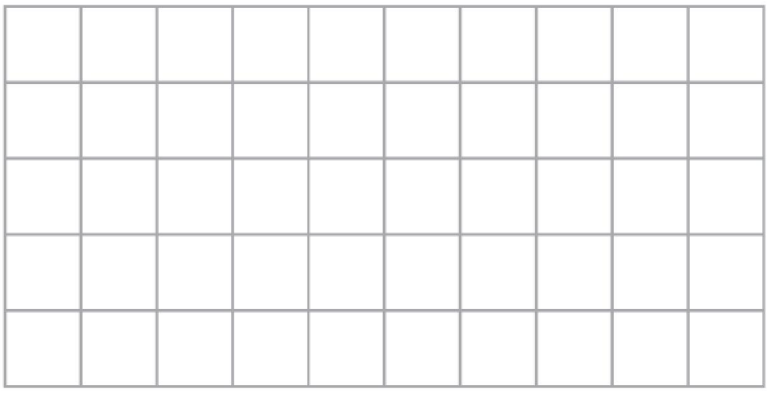
Jack uses a different rule.

He says the first six terms of the number pattern are 1 2 4 7 11 16

(*c*) Write down the 7th and 8th terms of Jack's number pattern.

Question 4 (AO1): 63% of students got this right

4 On the grid, draw a parallelogram.



Question 5 (AO1): 62% of students got this right

6. There are 400 counters in a bag.

36% of the counters are yellow.

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

The rest of the counters are green.

Work out how many counters are green.

.....

(Total 4 marks)

Question 6 (AO2): 60% of students got this right

6b The first term of a sequence of numbers is 15
The term-to-term rule for this sequence is "add 4"

(b) Rizvi says,

"No terms of the sequence are multiples of 5"

Give an example to show Rizvi is wrong.

.....

.....

.....

.....

(2)

Question 7 (AO1): 59% of students got this right

1. Write 0.013 as a fraction.

.....

(Total 1 mark)

Question 8 (AO1): 57% of students got this right

15 (*a*) Work out $\dfrac{4.36 + 2.8^3}{6.8 - 5.42}$

Give your answer as a decimal.
Write down all the digits on your calculator display.

Question 9 (AO2): 57% of students got this right

6a The first term of a sequence of numbers is 15
The term-to-term rule for this sequence is "add 4"

(a) Is 402 a term of the sequence?
You must explain your answer.

.....

.....

.....

.....

(1)

Question 10 (AO3): 56% of students got this right

11 Jo sold 152 mugs.

One quarter of the mugs were small.

The rest were large.

Jo made a profit of £1.45 on each small mug.

She made **twice** as much profit on each large mug.
Work out her total profit.

[6 marks]

Question 11 (AO1): 54% of students got this right

12 Find the value of $\dfrac{\sqrt{13.4 \quad 1.5}}{(6.8+0.06)^2}$

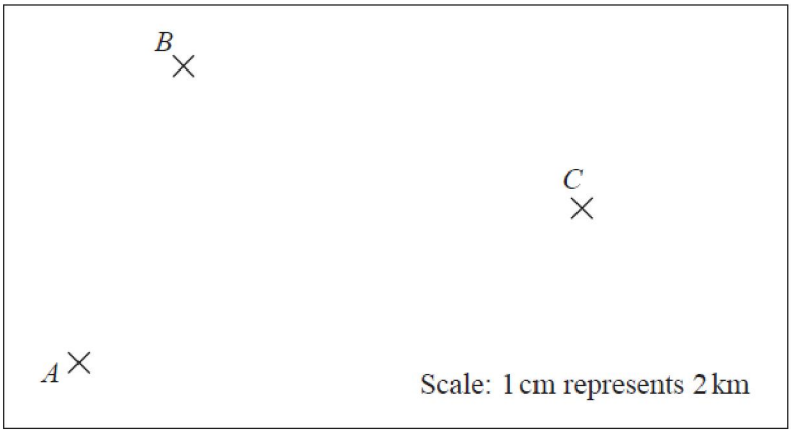
Write down all the figures on your calculator display.

.....

(Total for Question 12 is 2 marks)

Question 12 (AO2): 53% of students got this right

10 This accurate scale drawing shows the positions of three villages, *A*, *B* and *C*.



Tom walks from *A* to *B*.
He then walks from *B* to *C*.

Amy walks from *A* to *C*.

Tom walks more kilometres than Amy walks.

How many more?

.....

(Total for Question 10 is 3 marks)

Question 13 (AO1): 53% of students got this right

9 Here is a map of an island.

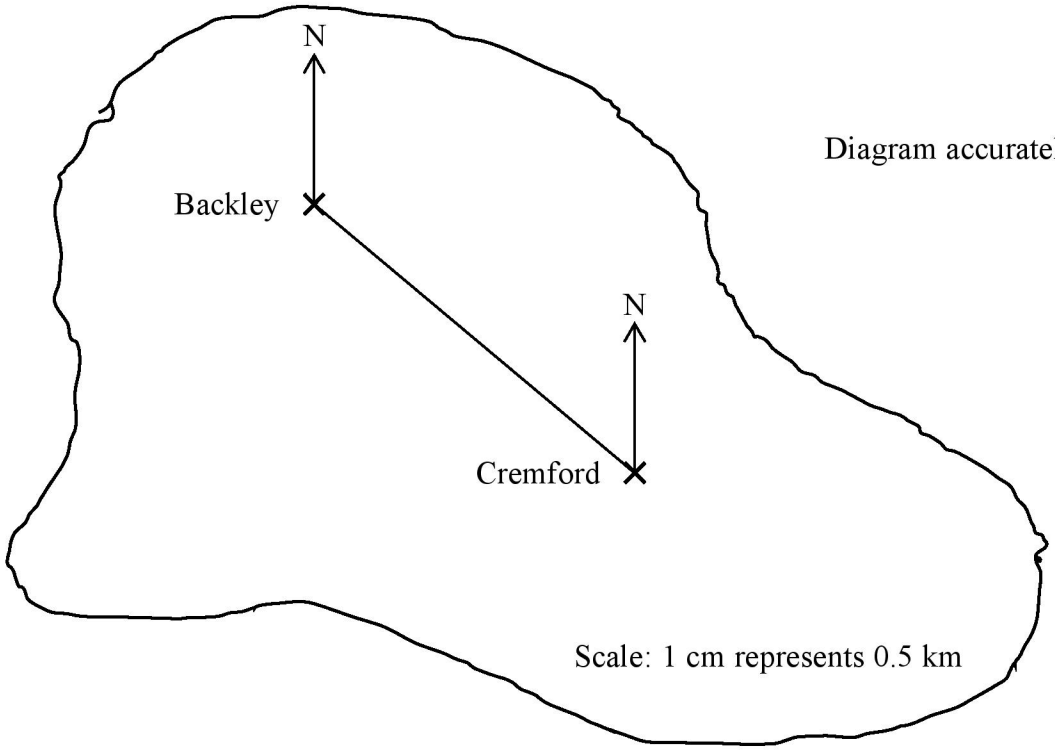


Diagram accurately drawn

A straight road joins the two villages, Backley and Cremford.

(*a*) Work out the real distance between the two villages.

Question 14 (AO2): 52% of students got this right

13. Jenny wants to record 15 minutes of songs for a film.
The table shows the playing time of 3 songs she has recorded.

Song	Playing time
A	4 minutes and 33 seconds
B	3 minutes and 42 seconds
C	3 minutes and 06 seconds

How much more time, in minutes and seconds, does she need to record?

..... minutes ..... seconds

(Total 4 marks)

Question 15 (AO2): 51% of students got this right

6 Here is part of a train timetable from Swindon to London.

Swindon to London							
Swindon	06 10	06 27	06 41	06 58	07 01	07 17	07 28
Didcot	06 27	06 45	06 58	–	7 18	–	07 45
Reading	06 41	06 59	07 13	07 28	07 33	07 43	08 00
London	07 16	07 32	07 44	08 02	08 07	08 14	08 33

(*a*) How long should the 06 58 train from Swindon take to get to London?

Clare says,

"All these trains take more than one hour to get from Swindon to London."

(*b*) Is Clare correct?
You must give a reason for your answer.

Question 16 (AO1): 50% of students got this right

5. Here are four numbers.

$$0.43 \qquad \frac{3}{7} \qquad 43.8\% \qquad \frac{7}{16}$$

(*b*) Write these numbers in order of size.
Start with the smallest number.

.....

(2)

Question 17 (AO3): 49% of students got this right

15. Norma makes bags.
She makes 17 bags an hour.
Norma works for 6 hours each day, 5 days a week.

Each bag is checked.
If the bag is perfect, it is put in a box.
When there are 12 bags in a box it is full.

One week 90% of the bags Norma made were perfect.

Work out the number of boxes completely filled with bags made by Norma.

.....

(Total for Question 15 is 5 marks)

Question 18 (AO2): 48% of students got this right

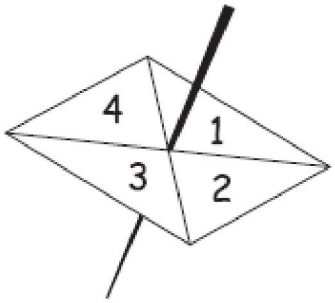
8 Here are four fractions.

$$\frac{1}{2} \qquad \frac{17}{24} \qquad \frac{3}{4} \qquad \frac{5}{12}$$

Write these fractions in order of size.
Start with the smallest fraction.

Question 19 (AO1): 47% of students got this right

12. Here is a four-sided spinner.
The spinner is biased.



The table shows the probabilities that the spinner will land on 1 or on 3

Number	1	2	3	4
Probability	0.2		0.1	

The probability that the spinner will land on 2 is the same as the probability that the spinner will land on 4

(a) Work out the probability that the spinner will land on 4

.....

(3)

Shunya is going to spin the spinner 200 times.

(b) Work out an estimate for the number of times the spinner will land on 3

.....

(2)

(Total 5 marks)

Question 20 (AO3): 46% of students got this right

12. This accurate scale drawing shows two ports, **A** and **B**.

Scale: 1 cm represents 10 miles.

A boat takes 5 hours to sail directly from **A** to **B**.

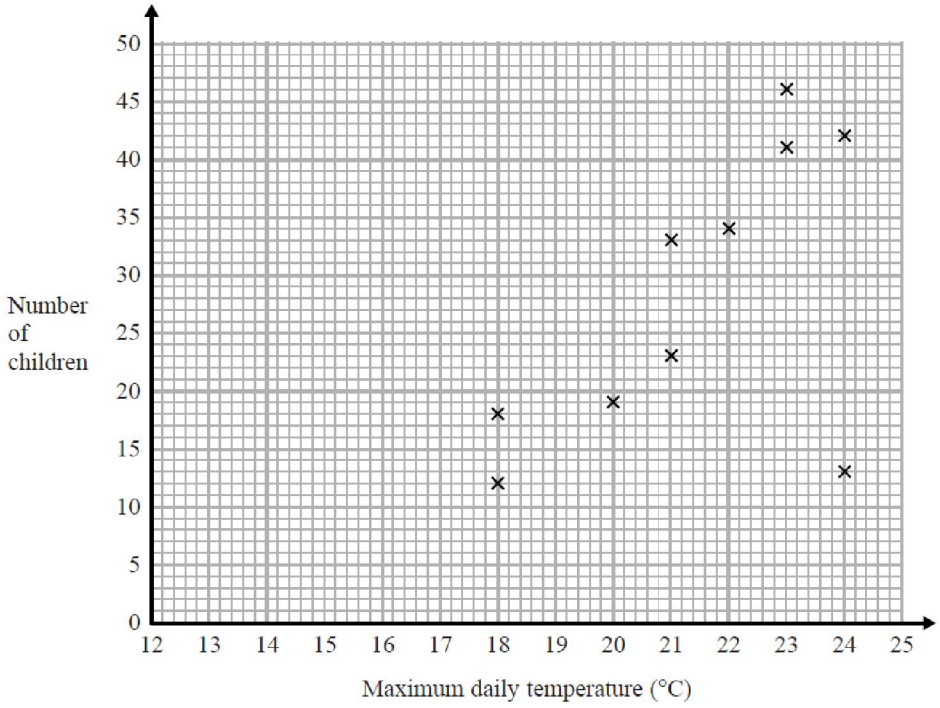
Calculate the boat's average speed.
You must show all your working.

..... mph

(Total for Question 12 is 3 marks)

Question 21 (AO1): 45% of students got this right

25b Johan records the maximum daily temperature each day for 10 days.
He also records the number of children going to a park for each of these days.
He draws this scatter graph for his information.



(b) What type of correlation does the scatter graph show?

.....

(1)

Question 22 (AO2): 44% of students got this right

8 Here are the first five numbers in a sequence.

47 41 35 29 23

Sarah says,

" –100 is **not** a number in this sequence."

(*b*) Is Sarah correct?
Explain why.

Question 23 (AO2): 43% of students got this right

4 Jane wants to buy 15 tomatoes.
She asks for 1 kg of tomatoes at a shop.
Jane assumes that each tomato has a weight of 75 g.

(*b*) (i) If Jane's assumption is correct, will she get 15 tomatoes?
You must show how you get your answer.

(ii) If Jane's assumption is **not** correct, could she get 15 tomatoes?
Justify your answer.

Question 24 (AO1): 42% of students got this right

23 Use your calculator to work out $\sqrt{\dfrac{\sin 25^\circ + \sin 40^\circ}{\cos 25^\circ - \cos 40^\circ}}$

(*a*) Write down all the figures on your calculator display.

Question 25 (AO1): 41% of students got this right

15 (*a*) Write 4.7×10^{-1} as an ordinary number.

(1)

(*b*) Work out the value of $(2.4 \times 10^3) \times (9.5 \times 10^5)$
Give your answer in standard form.

(2)

(Total for Question 15 is 3 marks)

Question 26 (AO1): 41% of students got this right

21 Here are the first five terms of an arithmetic sequence.

$$-3 \qquad 1 \qquad 5 \qquad 9 \qquad 13$$

Find an expression, in terms of n, for the nth term of this sequence.

Question 27 (AO1): 40% of students got this right

6 Katy is facing North.

She does a three-quarter turn anti-clockwise.

She then turns 45° clockwise.

What direction is she facing now?

[2 marks]

Answers to Qn 1 (AO1): 65% of students got this right

Paper 1MA1: 3F			
Question	**Working**	**Answer**	**Notes**
5		60	B1 cao

Answers to Qn 2 (AO1): 65% of students got this right

Part	**Working or answer an examiner might expect to see**	**Mark**	**Notes**
10 (b)	Kite	1	This mark is given for the correct answer only

Answers to Qn 3 (AO1): 64% of students got this right

Paper 1MA1: 2F			
Question	**Working**	**Answer**	**Notes**
11 (a)		rule stated	C1 for rule stated, eg number doubles
(b)		32	B1 cao
(c)		22, 29	B1 cao

Answers to Qn 4 (AO1): 63% of students got this right

Paper 1MA1: 3F			
Question	**Working**	**Answer**	**Notes**
4		Parallelogram	B1 for parallelogram drawn

Answers to Qn 5 (AO1): 62% of students got this right

Question		Working	Answer	Mark	Notes
6.			96	4	M1 for a method to find 36% of 400 (= 144) M1 for a method to find $\frac{2}{5}$ of 400 (= 160) M1 (dep on M2) for 400 – "144" – "160" A1 cao

Answers to Qn 6 (AO2): 60% of students got this right

6 (b) Rizvi says,

"No terms of the sequence are multiples of 5"

Give an example to show Rizvi is wrong.

$n = 6$

$4(6) + 11 = 35$

35 is a multiple of 5

Answers to Qn 7 (AO1): 59% of students got this right

1MA1 Practice papers Set 2: Paper 2F (Regular) mark scheme – Version 1.0					
Question		**Working**	**Answer**	**Mark**	**Notes**
1.			$\frac{13}{1000}$	1	B1 cao

Answers to Qn 8 (AO1): 57% of students got this right

Question	Working	Answer	Mark	Notes
15 (a)		$19.0\dot{6}$	M1	for 7.84 **or** 12.2 **or** 1.38
			A1	for 19.066 (66666…) or 19.06 with some indication that the 6 is recurring

Answers to Qn 9 (AO2): 57% of students got this right

6 The first term of a sequence of numbers is 15
The term-to-term rule for this sequence is "add 4"

(a) Is 402 a term of the sequence?
You must explain your answer.

No, because, the sequence will only contain odd numbers and 402 is even.
$4n + 11 = 402$ means n is not an integer

Answers to Qn 10 (AO3): 56% of students got this right

11 Jo sold 152 mugs.

One quarter of the mugs were small.

The rest were large.

Jo made a profit of £1.45 on each small mug.

She made **twice** as much profit on each large mug.
Work out her total profit.

[6 marks]

152 × 0.25 = 38

152 – 38 = 114

Small mug profit: £1.45 × 38 = £55.10

Large mug profit: £1.45 × 2 × 114 = £330.60

Answer 385.70

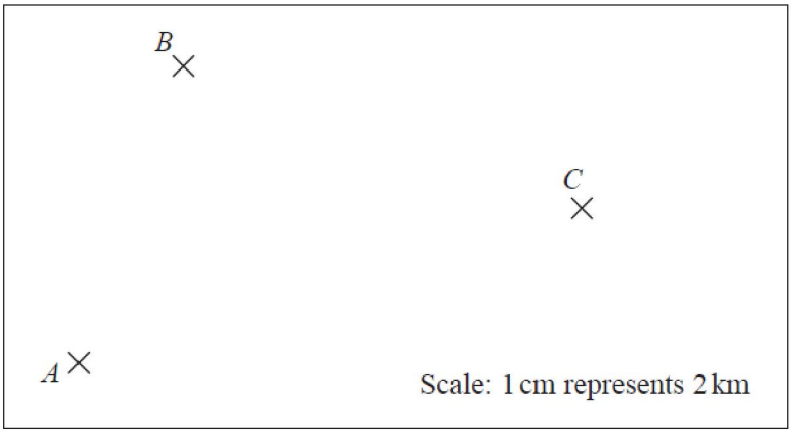
Answers to Qn 11 (AO1): 54% of students got this right

Question 12 (Total 2 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	$\frac{3.449637(}{47.0596}$	M1	This mark is given for a correct numerator or a correct denominator
	0.0733035	A1	This mark is given for a correct answer only

Answers to Qn 12 (AO2): 53% of students got this right

10 This accurate scale drawing shows the positions of three villages, *A*, *B* and *C*.



Tom walks from *A* to *B*.
He then walks from *B* to *C*.

Amy walks from *A* to *C*.

Tom walks more kilometres than Amy walks.

How many more?

AB + *BC* – *AC* = 4.5 + 6 – 7.5 = 3 cm

3 × 2 **= 6 km**

Answers to Qn 13 (AO1): 53% of students got this right

Part	Working or answer an examiner might expect to see	Mark	Notes
9 (a)	5.5 cm	1	This mark is given for accurately measuring the distance between Backley and Cremford (within the range 5.3cm to 5.7 cm)
	2.75	1	The mark is given for a correct answer in the range 2.65 to 2.85

Answers to Qn 14 (AO2): 52% of students got this right

13.		4 + 3 + 3 = 10 33 + 42 + 6 = 81 81 – 60 = 21 10 + 1 = 11 **OR** 4:33 = 273 secs 3:42 = 222 secs 3.06 = 186 secs 273 + 222 + 186 = 684 15:00 – 11:21 or 900 – 684	3 minutes 39 seconds	4	M1 for attempting to add minutes or seconds or 684 or 1081 or 1121 seen M1 for a conversion at any stage using 60 (indep) e.g. 4 × 60 + 33, or 10 minutes 81 seconds or 81 ÷ 60 M1 for attempting to subtract "total time" from 15 minutes 1500 – 1121 or 15.00 – 1081 or 900 – 684 A1 cao.

Answers to Qn 15 (AO2): 51% of students got this right

Paper 1MA1: 2F			
Question	**Working**	**Answer**	**Notes**
6 (a)		1 hr 4 mins	B1 cao
(b)		No + explanation	B1 for no + explanation, eg the 0717 from Swindon takes less than one hour

Answers to Qn 16 (AO1): 50% of students got this right

5.	(*b*)	43%, 42.8.%, 43.8%, 43.75%	$\frac{3}{7}$ 0.43 $\frac{7}{16}$ 43.8%	2	M1 Convert at least 2 of the 3 correctly to percentages or decimals A1 correct order. Accept written in any correct form. SC: Award B1 (1 mark only) if ordered largest to smallest

Answers to Qn 17 (AO3): 49% of students got this right

15		38	P1 P1 P1 A1 C1	for a process to begin the problem, e.g. 90% of 17 or number of bags per week (= 510) (dep P1) for a complete process to find the number of perfect bags per week eg “510” × 0.9 (= 459) (dep P1) for dividing the number of perfect bags by 12, e.g. “459” ÷ 12 (=38.25) 38.25 or 38 given as the answer ft For rounding their answer to a full number of boxes

Answers to Qn 18 (AO2): 48% of students got this right

Paper 1MA1: 2F			
Question	**Working**	**Answer**	**Notes**
8		$\frac{5}{12}, \frac{1}{2}, \frac{17}{24}, \frac{3}{4}$	M1 for a method to convert each to a form that can be easily used for comparing, eg. $\frac{5}{12} = \frac{10}{24}$ A1 for correct order

Answers to Qn 19 (AO1): 47% of students got this right

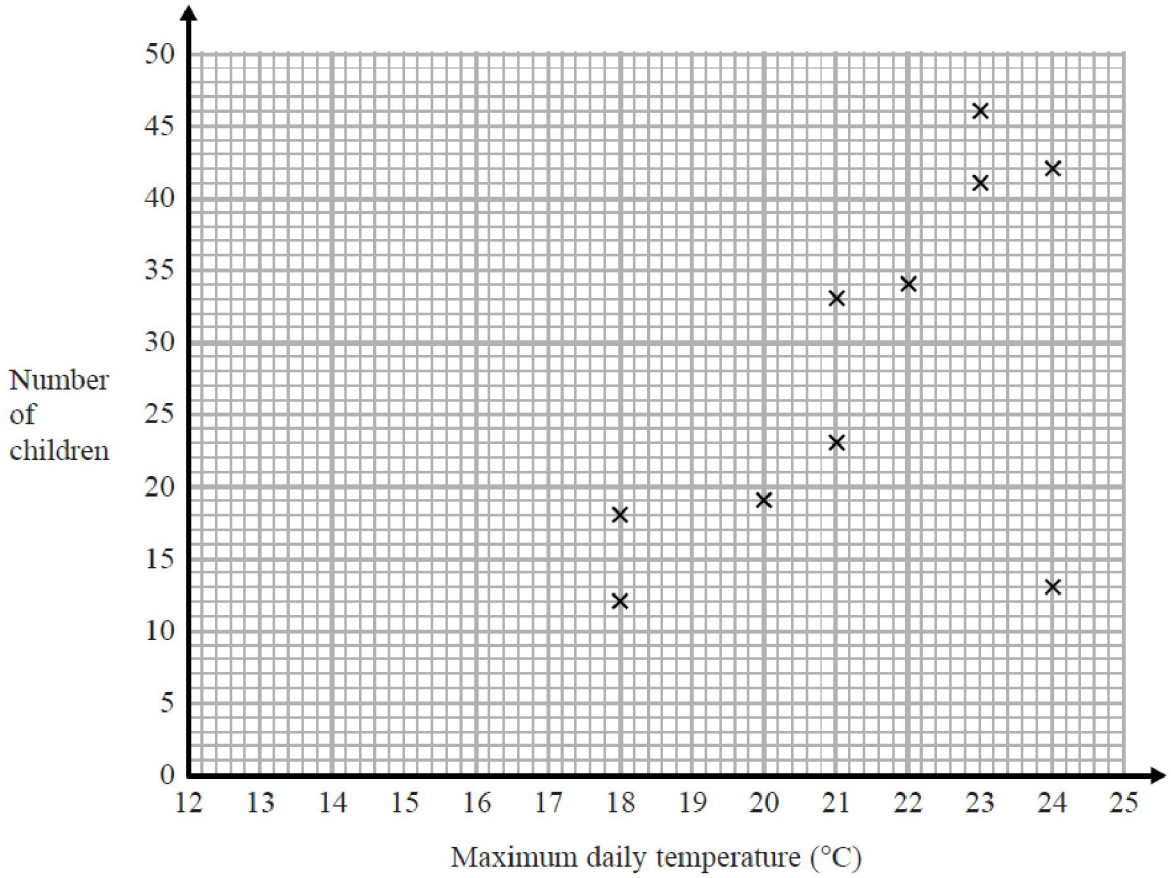
Question		Working	Answer	Mark	Notes
12	(a)	$1 - 0.2 - 0.1$ $0.7 \div 2$	0.35	3	M1 for correctly using total probability 1 or 100% if percentages used M1 (dep) for complete correct method to complete the solution A1 for 0.35 or 35% oe
	(b)	0.1×200	20	2	M1 for 0.1×200 A1 cao

Answers to Qn 20 (AO3): 46% of students got this right

12		15	B1 M1 A1	for a measurement given as 7.3 to 7.7 (cm) for “7.5” × 10 ÷ 5 where “7.5” is their measurement (dep M1) ft

Answers to Qn 21 (AO1): 45% of students got this right

25b Jean records the maximum daily temperature each day for 10 days.
She also records the number of children going to a paddling pool for each of these days.
She draws this scatter graph for her information.



Jean's information for one of these days is an outlier on the scatter graph.
(b) What type of correlation does the scatter graph show?

Positive

Answers to Qn 22 (AO2): 44% of students got this right

Question	Working	Answer	Mark	Notes
8 (b)		Yes (supported)	B1	Yes, with explanation, e.g. (–)100 is even but all other numbers are odd oe

Answers to Qn 23 (AO2): 43% of students got this right

Part	Working or answer an examiner might expect to see	Mark	Notes
4 (b)(i)	$15 \times 75 = 1125$ or $1000 \div 75 = 13.333\ldots$	1	This mark is given for finding the weight of 15 tomatoes or finding how many tomatoes would be in 1 kg
	No, she will get fewer than 15 tomatoes	1	This mark is given for a correct statement supported by working
4 (b)(ii)	Yes, she could if a tomato weighed 66g or less	1	This mark is given for a correct statement supported by working

Answers to Qn 24 (AO1): 42% of students got this right

Part	Working or answer an examiner might expect to see	Mark	Notes
23 (a)	$\sqrt{\frac{1.0654058}{0.1402633}} = 7.595756$	1	This mark is given for any of 1.0654058, 1.402633 or 7.595756 seen
	2.7560399…	1	This mark is given for the correct answer only

Answers to Qn 25 (AO1): 41% of students got this right

Question 15 (Total 3 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	0.47	B1	This mark is given for the correct answer only
	$2.4 \times 9.5 \times 10^3 \times 10^5 = 22.8 \times 10^8$	M1	This mark is given for correct values which are not in standard form
	2.28×10^9	A1	This mark is given for the correct answer only

Answers to Qn 26 (AO1): 41% of students got this right

Paper 1MA1: 3F			
Question	**Working**	**Answer**	**Notes**
21		$4n - 7$	M1 method to deduce nth term e.g. $4n + k$ A1 for $4n - 7$ oe

Answers to Qn 27 (AO1): 40% of students got this right

6 Katy is facing North.

She does a three-quarter turn anti-clockwise.

She then turns 45° clockwise.

What direction is she facing now?

[2 marks]

Three-quarter turn anti-clockwise = quarter turn clockwise (90°)

90 + 45

Answer 135°