

ADA PINPOINT PACKS

52_to_69_Percent_Pinpoint_AI_Pack

Made for Grade3to4_Paper3

AO1,2_and_3

ALL_Strands

Calc_Only

Created by A.D.A:

Pinpoints Automatic Differentiation Algorithmn

Designed and Programmed by

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

Question 1 (AO1): 47% of students got this right

- 7 Jaroslav puts some items into his rucksack.

The table shows the weight of each item.

Item	Weight
2 apples	120 g each
2 bottles of water	524 g each
camera	474 g
map	86 g
mobile phone	214 g
umbrella	339 g

The rucksack has a weight of 275 g.

Work out the total weight of the rucksack and all the items.

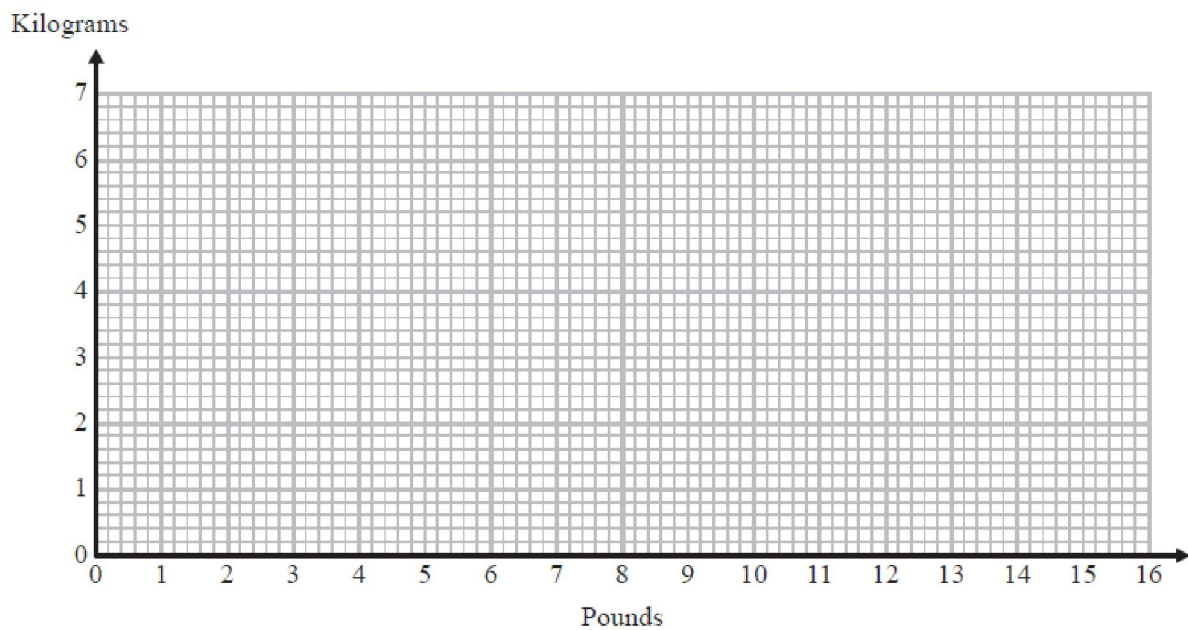
Give your answer in kilograms.

Question 2 (AO1): 47% of students got this right

13. Mary works in a maternity unit.
She weighs the babies.

The table shows some weights in both pounds and kilograms.

pounds	4.4	6.6	8.8	11	13.2	15.4
kilograms	2	3	4	5	6	7



- (b) Change 10 pounds to kilograms.

..... kilograms
(1)

- (c) Change 6.5 kilograms to pounds.

..... pounds
(1)

(Total 4 marks)

Question 3 (AO1): 46% of students got this right

15. $-2 < n \leq 3$
 n is an integer.

(a) Write down all the possible values of n .

.....

(2)

Question 4 (AO1): 46% of students got this right

9 Davos is a cleaner.

The table shows information about the time it will take him to clean each of four rooms in a house.

Room	Time
Kitchen	2 hours
Sitting room	1 hour 40 minutes
Bedroom	$1\frac{1}{2}$ hours
Bathroom	45 minutes

Davos wants to clean all four rooms in one day.

He will have breaks for a total time of 75 minutes.

Davos is going to start cleaning at 9 a.m.

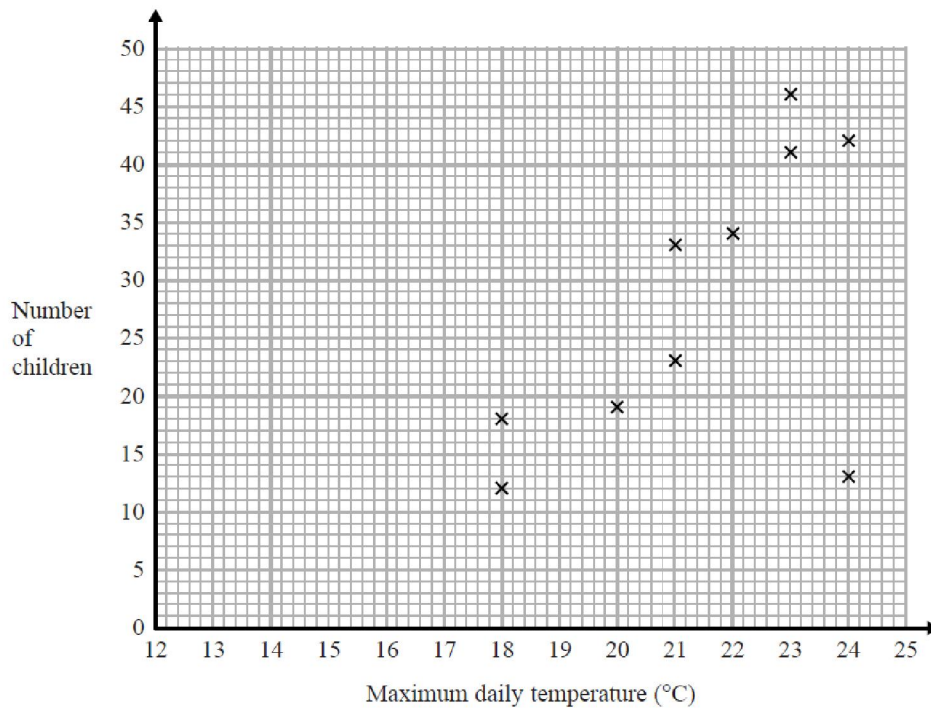
Will he finish cleaning by 4 p.m.?

You must show all your working.

(Total for Question 9 is 3 marks)

Question 5 (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 6 (AO2): 44% of students got this right

10. Jim says,

“When you subtract a number from 10, the answer will always be less than 10”

(a) Is Jim correct?

You must give a reason with you answer.

Lucy says,

“When you halve a whole number that ends in 4, you always get a number that ends in 2”

(b) Write down an example to show that Lucy is wrong.

Question 7 (AO1): 44% of students got this right

- 3 Write 0.075 as a fraction.
Give your fraction in its simplest form.

Question 8 (AO2): 43% of students got this right

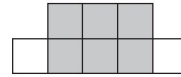
5c Here is a sequence of patterns made from grey squares and white squares.



pattern number 1



pattern number 2



pattern number 3

Aqsa says,

“The total number of squares needed to make pattern number 20 is double the total number of squares needed to make pattern number 10”

- (c) Is Aqsa correct?
Give a reason for your answer.

.....

.....

.....

(2)

Question 9 (AO3): 43% of students got this right

- 8** There are 258 pupils at a school.
135 of the pupils are boys.

$\frac{3}{5}$ of the boys walk to school.

$\frac{2}{3}$ of the girls walk to school.

Work out how many pupils walk to school.

.....

(Total for Question 8 is 3 marks)

Question 10 (AO1): 42% of students got this right

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

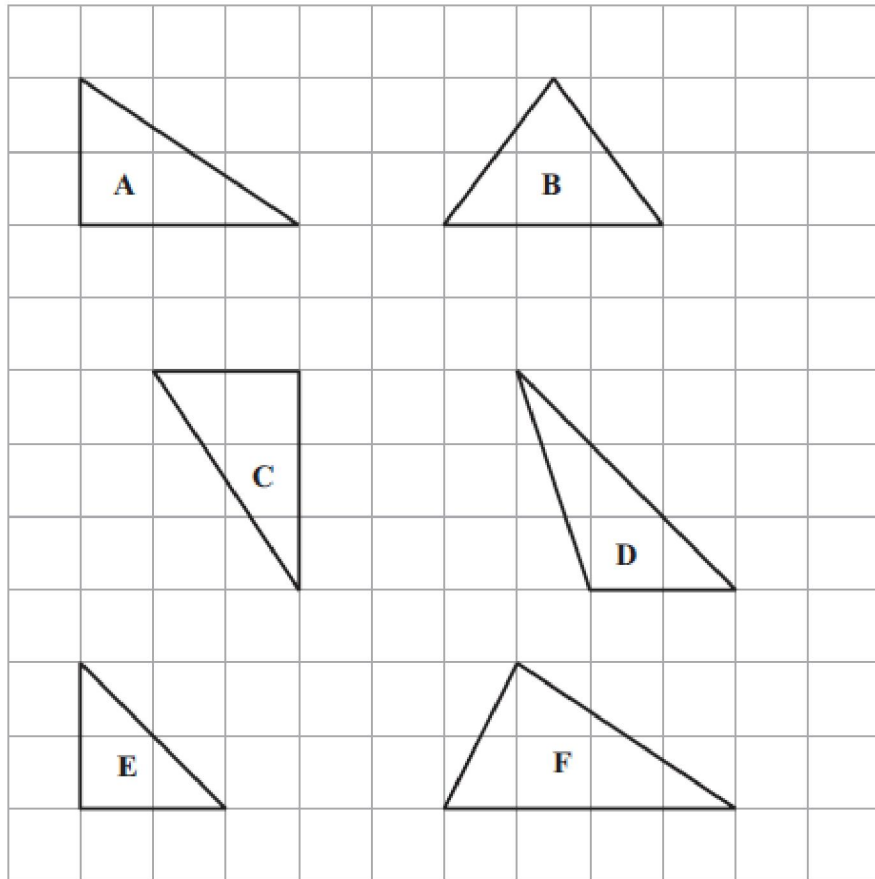
(a) Write down all the figures on your calculator display.

Question 11 (AO1): 41% of students got this right

17 (c) Solve $9(c - 6) = 63$

Question 12 (AO1): 41% of students got this right

17. Here are 6 triangles drawn on a grid of centimetre squares.



- (a) Write down the letters of the two congruent triangles.

.....
(1)

- (b) Write down the letter of an isosceles triangle.

.....
(1)

Question 13 (AO2): 41% of students got this right

- 13.** Mrs Phillips needs to decide when to have the school sports day.

The table shows the number of students who will be at the sports day on each of 4 days.
It also shows the number of teachers who can help on each of the 4 days.

	Tuesday	Wednesday	Thursday	Friday
Number of students	179	162	170	143
Number of teachers	15	13	14	12

For every 12 students at the sports day there must be at least 1 teacher to help.

On which of these days will there be enough teachers to help at the sports day?
You must show all your working.

(Total for Question 24 is 3 marks)

Question 14 (AO1): 40% of students got this right

7. The length of a bus is 10 metres.

Gurjeet makes a model of the bus.
He uses a scale of 1 cm to 40 cm.

Work out the length of the model of the bus.
Give your answer in centimetres.

..... cm

(Total 2 marks)

Question 15 (AO1): 40% of students got this right

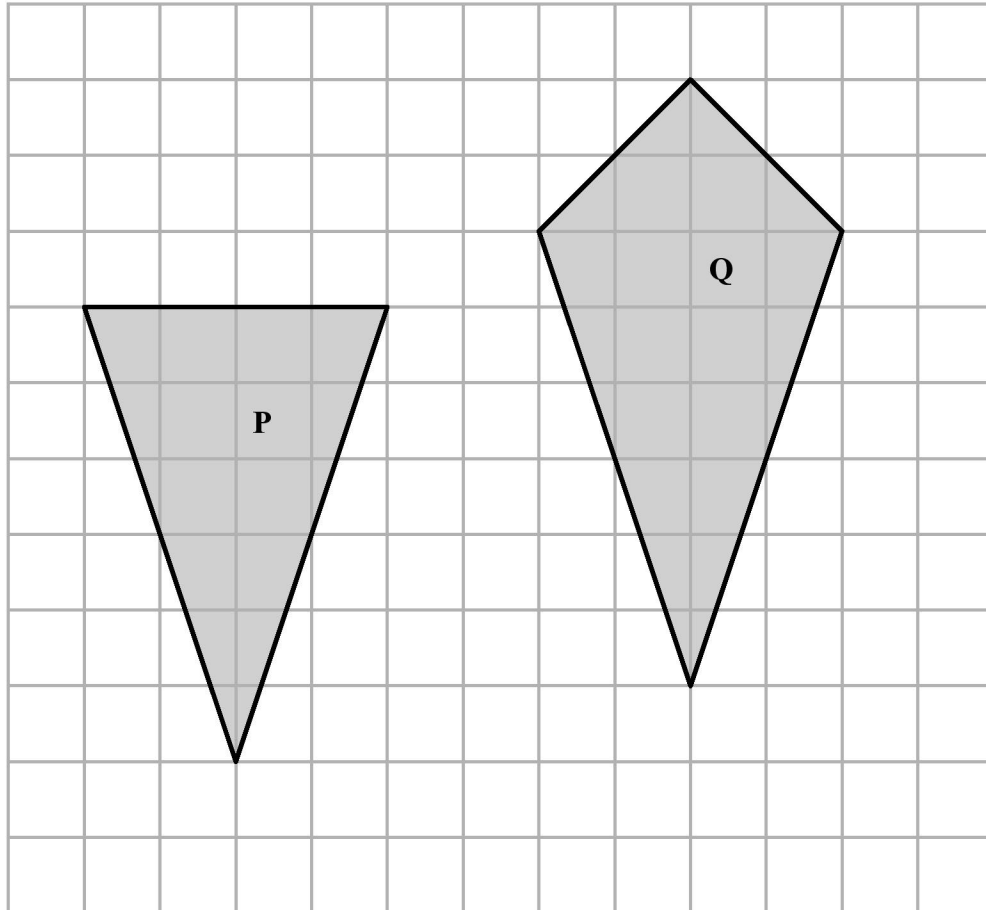
- 6 Katy is facing North.
She does a three-quarter turn anti-clockwise.
She then turns 45° clockwise.
What direction is she facing now?

[2 marks]



Question 16 (AO1): 39% of students got this right

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



- (a) Find the area of shape **P**.

Question 17 (AO1): 39% of students got this right

5(c) Factorise $6n - 4$

.....
(1)

Question 18 (AO3): 39% of students got this right

- 14** Andy went on holiday to Canada.
His flights cost a total of £1500.
Andy stayed for 14 nights.
His hotel room cost \$196 per night.
Andy used wifi for 12 days.
Wifi cost \$5 per day.
The exchange rate was \$1.90 to £1.
(a) Work out the total cost of the flights, the hotel room and wifi.
Give your answer in pounds.

(5)

Question 19 (AO1): 37% of students got this right

Shunya is going to spin the spinner 200 times.

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

Question 20 (AO1): 37% of students got this right

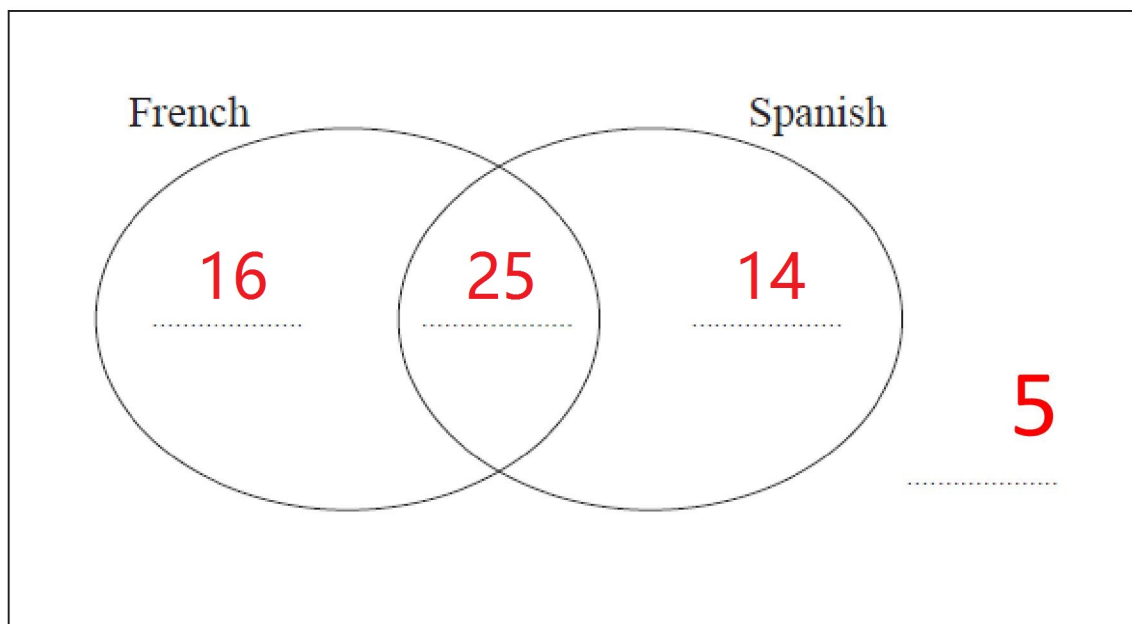
23b There are 60 students at a college.

25 students study both French and Spanish.

16 students study French but not Spanish.

A total of 39 students study Spanish.

Here is the Venn diagram for this information.



One of the students at the college is to be selected at random.

(b) Write down the probability that this student studies neither French nor Spanish.

.....

(1)

Question 21 (AO2): 36% of students got this right

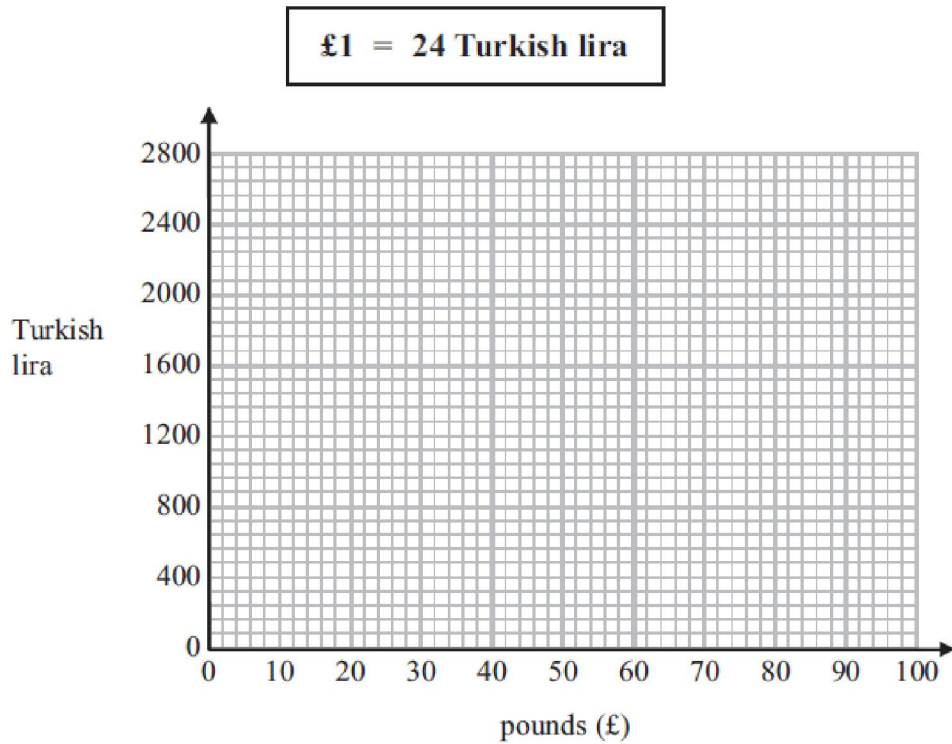
- 14** (b) If there were fewer dollars to £1, what effect would this have on the total cost, in pounds, of Andy's holiday?

(1)

(Total for Question 14 is 6 marks)

Question 22 (AO1): 35% of students got this right

7. Mary goes on holiday to Turkey.
Mary needs to change between pounds (£) and Turkish lira.



Mary changes 1800 Turkish lira into pounds.

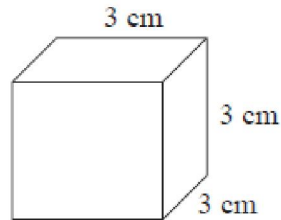
(b) Use your graph to change 1800 Turkish lira into pounds.

£..... (2)

(Total 4 marks)

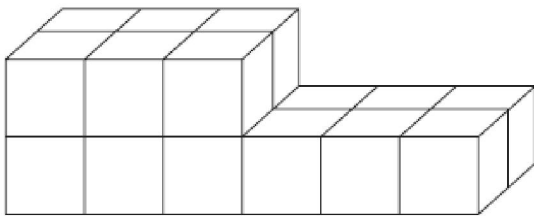
Question 23 (AO2): 34% of students got this right

11. Here is a solid cube.

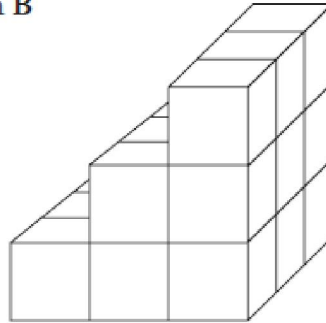


Here are two solid prisms made from centimetre cubes.

prism A



prism B



- (b) Compare the volume of prism A with the volume of prism B.

(3)

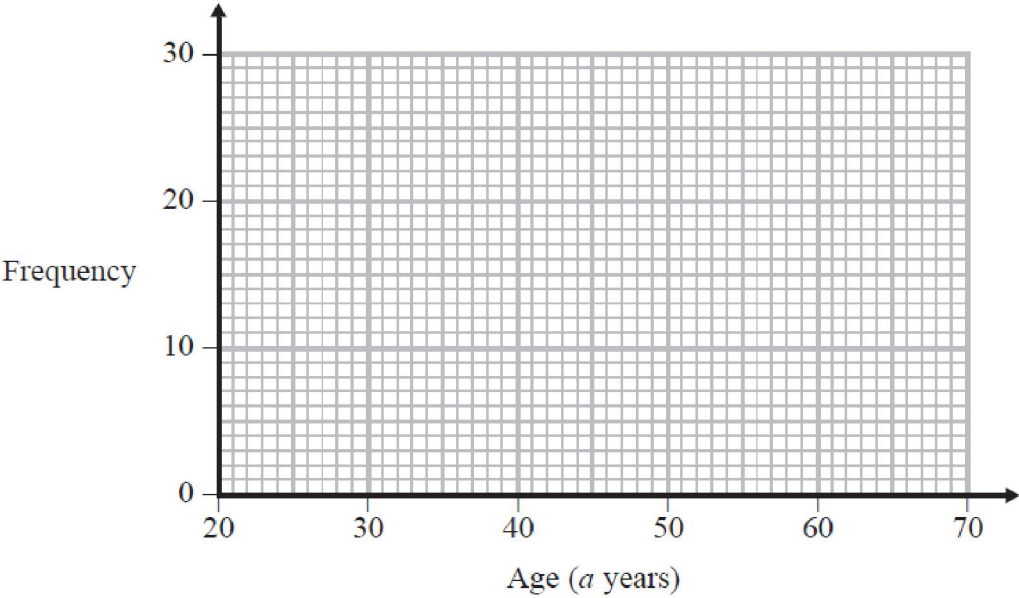
(Total 5 marks)

Question 24 (AO1): 34% of students got this right

13. The table shows some information about the ages of 60 teachers.

Age (a years)	Frequency
$20 < a \leq 30$	6
$30 < a \leq 40$	16
$40 < a \leq 50$	14
$50 < a \leq 60$	22
$60 < a \leq 70$	2

(b) Draw a frequency polygon for the information in the table.



(2)

(Total 3 marks)

Question 25 (AO1): 33% of students got this right

- 26 (c) Calculate $(4.515 \times 10^6) \div (3.01 \times 10^{-2})$
Give your answer in standard form.

Question 26 (AO1): 33% of students got this right

17 (b) Factorise $14b - 7$

Question 27 (AO3): 32% of students got this right

13. There were 60 votes in an election.

There were two candidates, Jared and Beth.
Jared had 18 more votes than Beth.

How many votes did Beth get?

.....

(Total 2 marks)

Answers to Qn 1 (AO1): 47% of students got this right

Question	Working	Answer	Mark	Notes
7		2.676	M1 B1 A1	for method to find total weight of at least 4 items, e.g. $2 \times 120 + 2 \times 524 + 474 + 86 + 214 + 339 + 275$ for change in units, e.g. $2676 \div 1000$ cao
Grade3to4_Paper3 and sample				

Answers to Qn 2 (AO1): 47% of students got this right

Question		Working	Answer	Mark	Notes
13.	(b)		4.4 – 4.6	1	B1 for 4.4 – 4.6 or ft graph (dep on single straight line)
	(c)		14.2 – 14.4	1	B1 for 14.2 – 14.4 or ft graph (dep on single straight line)
Grade3to4_Paper3 and sample					

Answers to Qn 3 (AO1): 46% of students got this right

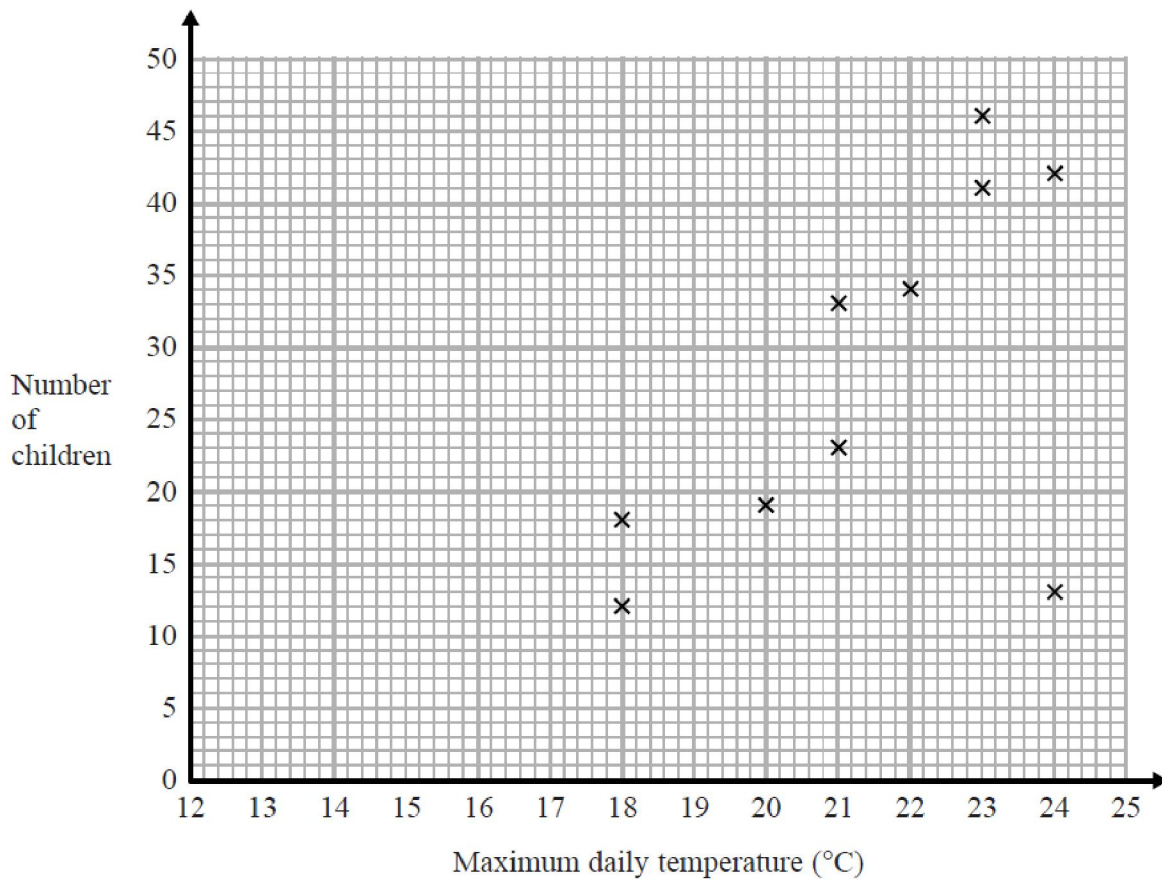
15.	(a)		-1, 0, 1, 2, 3	2	B2 for all 5 values and no extras (ignore repeats) (B1 for 4 correct values and no extras or all 5 correct values and one incorrect value)
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Answers to Qn 4 (AO1): 46% of students got this right

Paper: 1MA1/3F				
Question	Working	Answer	Mark	Notes
9		No (supported)	<p>P1</p> <p>P1</p> <p>C1</p>	<p>for finding a time difference e.g. length of day (=7 h or 420 min) or adding at least two of the five times on to 9 am or adding all the room times given (= 5 h 55 min or 355 min) or adding all five times given (=7 h 10 min or 430 min)</p> <p>for a complete process to inform final decision eg finds length of day (= 7 h) and total of all five times (=7 h 10 min) or starts at 9am and adds on all five times to find finishing time (= 4.10 pm)</p> <p>NO supported by correct values eg 4.10 pm or 7 h and 7 h 10 min or 420 min and 430 min</p>

Answers to Qn 5 (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 6 (AO2): 44% of students got this right

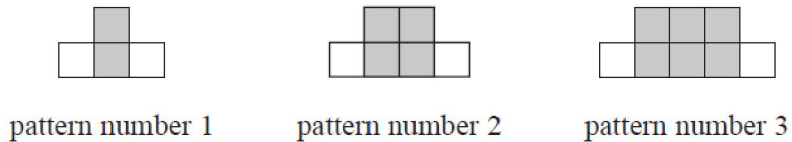
Question		Working	Answer	Mark	Notes
10			conclusion	1	C1 for No and example, e.g. " $10 - -2 = 12$ " or statement, e.g. "If you subtract a negative number the answer will be greater than 10"
			example	1	C1 for appropriate example, e.g. $14 \div 2 = 7$

Answers to Qn 7 (AO1): 44% of students got this right

Paper 1MA1: 2F			
Question	Working	Answer	Notes
3		$\frac{3}{40}$	M1 $\frac{75}{1000}$ oe A1
Grade3to4_Paper3 and sample			

Answers to Qn 8 (AO2): 43% of students got this right

5c Here is a sequence of patterns made from grey squares and white squares.



Aqsa says,

“The total number of squares needed to make pattern number 20 is double the total number of squares needed to make pattern number 10”

- (c) Is Aqsa correct?
Give a reason for your answer.

Nth term: $2n + 2$

$$n = 10 \quad (2(10) + 2) = 22$$

$$n = 20 \quad (2(20) + 2) = 42$$

Pattern number 20 is not double Pattern number 10

Answers to Qn 9 (AO3): 43% of students got this right

- 8 There are 258 pupils at a school.
135 of the pupils are boys.

$\frac{3}{5}$ of the boys walk to school.

$\frac{2}{3}$ of the girls walk to school.

Work out how many pupils walk to school.

$$\frac{3}{5} \times 135 = 81 \text{ boys walk to school}$$

$$258 - 135 = 123 \text{ girls}$$

$$\frac{2}{3} \times 123 = 82 \text{ girls walk to school}$$

$$81 + 82 = 163 \text{ pupils walk to school.}$$

Answers to Qn 10 (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 11 (AO1): 41% of students got this right

Question	Working	Answer	Mark	Notes
17 (c)		13	M1 A1	for correct expansion of the bracket, or for intention to divide both sides by 9 as the first step cao

Question Order Created by Pinpoint Learning for Grade3to4_Paper3 and sample

Answers to Qn 13 (AO2): 41% of students got this right

		13.	Tuesday and Friday	3	<p>M1 for $179 \div 12$ or $162 \div 12$ or $170 \div 12$ or $143 \div 12$</p> <p>A1 for 14.9(166...) or 15 and 13.5 or 14 and 14.1(66...) or 15 and 11.9(16...) or 12</p> <p>C1 (dep M1) ft for comparison of their results for all the days with the number of teachers available leading to a correct statement</p> <p>Or</p> <p>M1 for $179 \div 15$ or $162 \div 13$ or $170 \div 14$ or $143 \div 12$</p> <p>A1 for 11.9(3...) or 12 and 12.4(6...) or 13 and 12.1(4...) or 13 and 11.9(1...) or 12</p> <p>C1 (dep M1) ft for comparison of their results for all the days with 12 leading to a correct statement</p> <p>Or</p> <p>M1 for 15×12 or 13×12 or 14×12 or 12×12</p> <p>A1 for 180 and 156 and 168 and 144</p> <p>C1 (dep M1) ft for comparison of their results for all the days with the number of students taking part leading to a correct statement</p>
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Answers to Qn 14 (AO1): 40% of students got this right

Question		Working	Answer	Mark	Notes
7.			25	2	M1 for $10 \div 40 (= 0.25)$ or $10 \times 100 \div 40$ A1 cao

Answers to Qn 15 (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°

Answers to Qn 16 (AO1): 39% of students got this right

Part	Working or answer an examiner might expect to see	Mark	Notes
10 (a)	12	1	This mark is given for the correct area
	cm ²	1	This mark is given for the correct units

Answers to Qn 17 (AO1): 39% of students got this right

5	(c)	$2(3n - 2)$	B1	for $2(3n - 2)$
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Answers to Qn 18 (AO3): 39% of students got this right

Paper: 1MA1/3F						
Question		Working		Answer	Mark	Notes
14	(a)	\$	£	2975.79	P1	for process to find total room cost eg $196 \times 14 (= 2744)$
		5	2.631...		P1	for process to find total wifi cost eg $5 \times 12 (= 60)$
		60	31.578...		P1	for using exchange rate appropriately (could be used earlier in the question), eg “2804” \div 1.90 (= (£)1475.789...) or $1500 \times 1.90 (= (\$)2850)$
		196	103.157...			
		2744	1444.21...		P1	for process to find the total cost in £, eg “1475.79(..)” + 1500
		2804	1475.789...		A1	or in \$, eg “2850” + “2804” (= 5654) 2975 to 2976
Grade3to4_Paper3 and sample						

Answers to Qn 19 (AO1): 37% of students got this right

Question		Working	Answer	Mark	Notes
18	(b)		20	2	M1 for 0.1×200 oe A1 cao SC : If M0 then award B1 for an answer of $\frac{20}{200}$

Answers to Qn 20 (AO1): 37% of students got this right

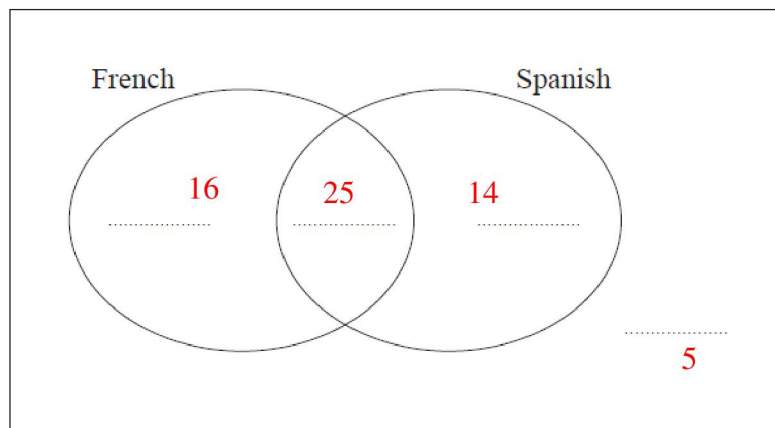
23b There are 60 students at a college.

25 students study both French and Spanish.

16 students study French but not Spanish.

A total of 39 students study Spanish.

(a) Complete the Venn diagram for this information.



One of the students at the college is to be selected at random.

(b) Write down the probability that this student studies neither French nor Spanish.

$$\frac{5}{60}$$

Answers to Qn 21 (AO2): 36% of students got this right

Paper: 1MA1/3F				
Question	Working	Answer	Mark	Notes
14 (b)		Statement	C1	Statement about the total price rising May comment that flights will not change but the rest will rise

Answers to Qn 22 (AO1): 35% of students got this right

Question		Working	Answer	Mark	Notes
7.	(b)	Line from 1800 lira to graph and down	73 – 77	2	M1 for line drawn from 1800 lira to their graph A1 ft for '75' \pm £2

Answers to Qn 23 (AO2): 34% of students got this right

Question		Working	Answer	Mark	Notes
11	(b)		Both prisms have the same volume (= 18 cm ³)	3	<p>M1 for a method to find the volume of one of the prisms</p> <p>A1 for prism A = 18 and prism B = 18</p> <p>C1 ft (dep on M1) for a correct comparison of their two stated volumes</p>

Answers to Qn 24 (AO1): 34% of students got this right

Question		Working	Answer	Mark	Notes
13	(b)		Polygon	2	<p>B2 for fully correct frequency polygon - points plotted at the midpoint</p> <p>(B1 for all points plotted accurately but not joined with straight line segments</p> <p>or</p> <p>all points plotted accurately and joined with last joined to first to make a polygon</p> <p>or</p> <p>all points at the correct heights and consistently within or at the ends of the intervals and joined (can include joining last to first to make a polygon)</p>

Answers to Qn 25 (AO1): 33% of students got this right

Question	Working	Answer	Mark	Notes
26 (c)		1.5×10^8	M1 A1	for 150 000 000 or 1.5×10^n where $n \neq 8$ cao

Answers to Qn 26 (AO1): 33% of students got this right

Question	Working	Answer	Mark	Notes
17 (b)		$7(2b - 1)$	B1	cao

Answers to Qn 27 (AO3): 32% of students got this right

Question	Working	Answer	Mark	Notes
13.	$60 - 18 = 42,$ $42 \div 2 = 21$ OR $x + x + 18 = 60$ $, 2x = 42$	21	2	M1 for $(60 - 18) \div 2$ A1 cao Or M1 for $x + x + 18 = 60$ oe A1 cao Or M1 for 3 trials differing by 18 eg (20, 38), (10, 28), (22, 40) A1 cao