PINPOINT REVISION PACKS

61_to_74_Percent_Pinpoint_AI_Pack

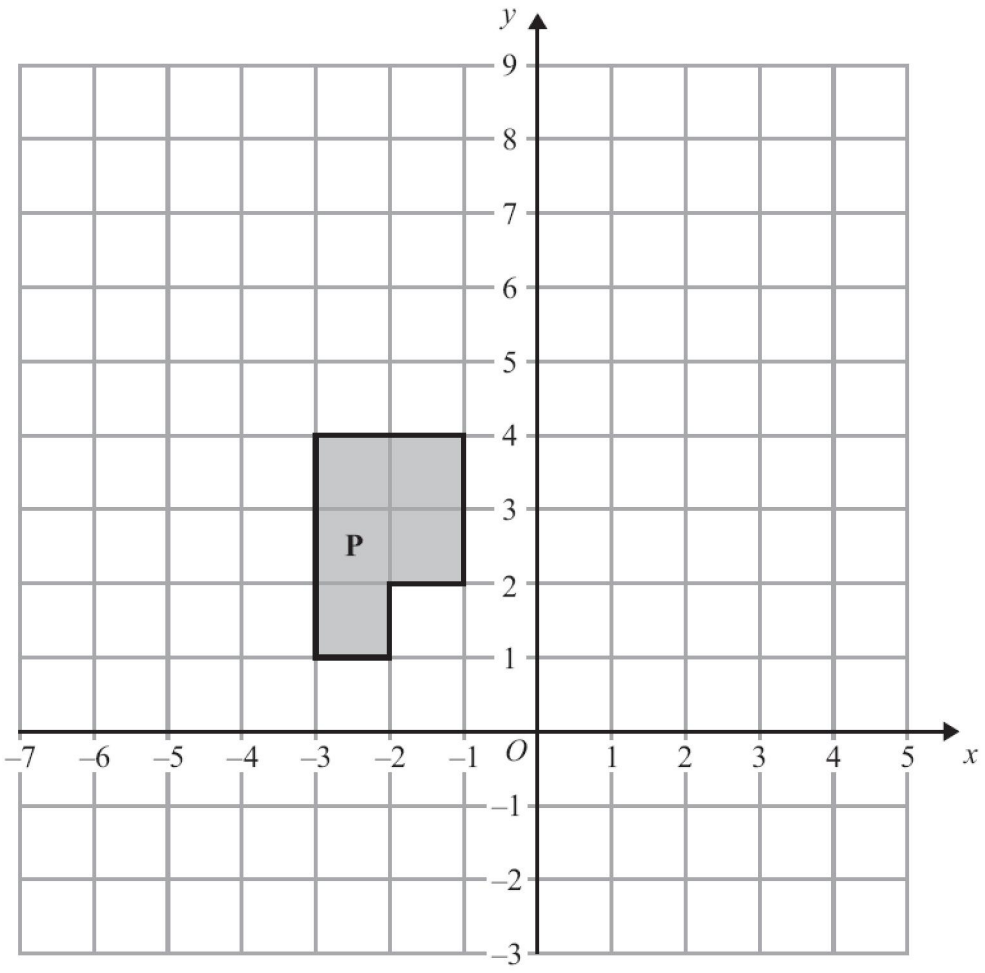
Time Allocation = 97mins , Max = 86 Marks

Calculated Grade Boundaries:

Grade	Marks
3+	22
4-	43
4	65
4+	86

Question 1 (AO1): 39% of students got this right (2 marks)

21.



(a) Translate shape P by the vector $\begin{pmatrix} 5 \\ -2 \end{pmatrix}$.

Question 2 (AO1): (No Calc) 39% of students got this right (2 marks)

23 Write 36 as a product of its prime factors.

Question 3 (AO2): 37% of students got this right (4 marks)

19. 5 schools sent some students to a conference.

One of the schools sent both boys and girls.
This school sent 16 boys.
The ratio of the number of boys it sent to the number of girls it sent was 1 : 2

The other 4 schools sent only girls.
Each of the 5 schools sent the same number of students.

Work out the total number of students sent to the conference by these 5 schools.

.....

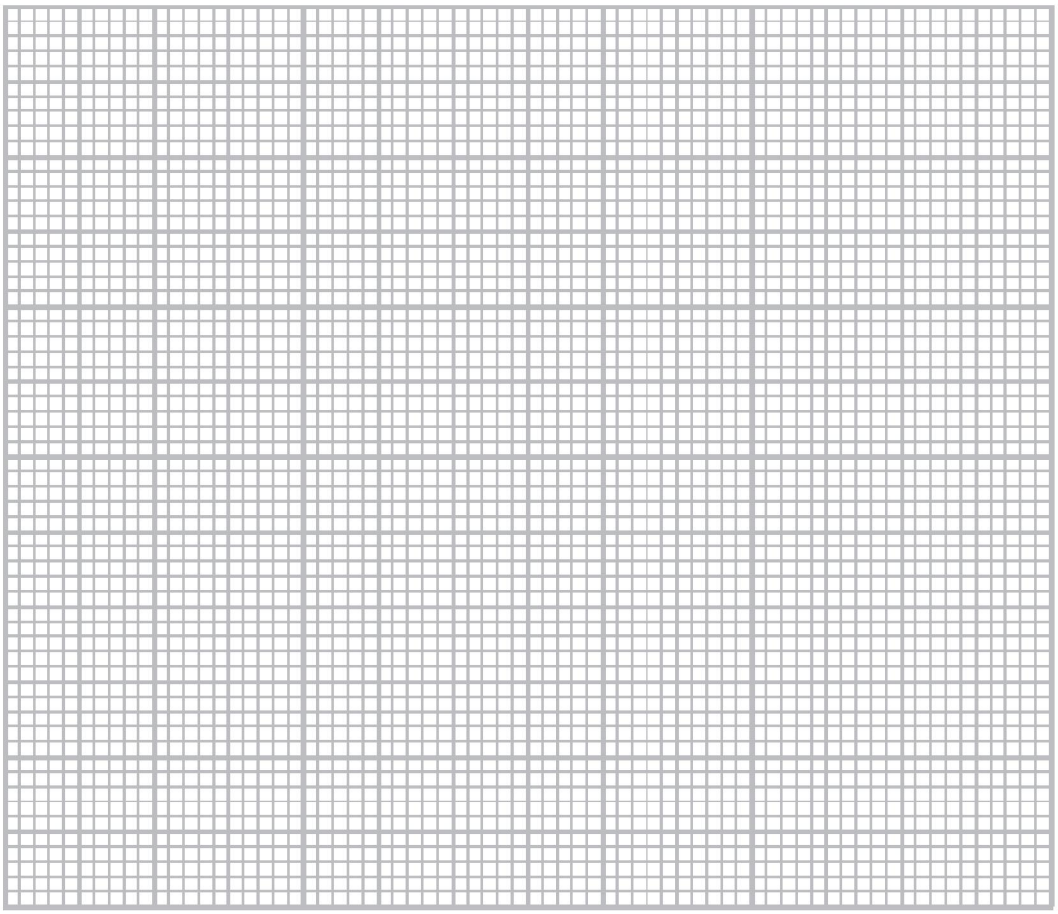
(Total 4 marks)

Question 4 (AO1): 36% of students got this right (4 marks)

16. Jamie is going to compare the information in the table.

	Protein	**Carbohydrate**	**Fat**
Regular	4.7	4.7	3.4
Low Fat	5.9	5.8	0.2

(*b*) On the grid, draw a suitable diagram or chart he could use.



(4)

(Total 5 marks)

Question 5 (AO1): (No Calc) 35% of students got this right (2 marks)

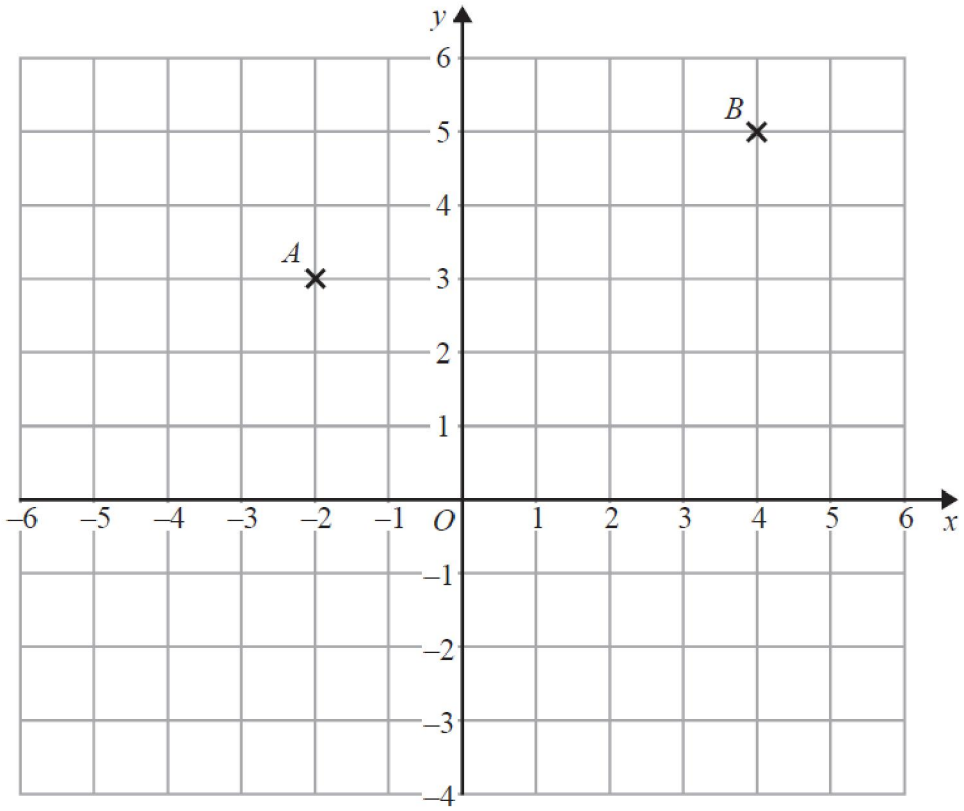
21 Solve $\frac{y}{4} - 12 = 8$

[2 marks]

$y =$ _____

Question 6 (AO1): (No Calc) 35% of students got this right (1 marks)

5



(*c*) On the grid, draw the line with equation $y = -3$

Question 7 (AO1): (No Calc) 35% of students got this right (2 marks)

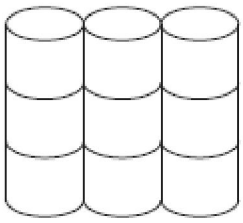
14 Some people were asked if they liked swimming or cycling or running.
The table shows the results for the males and the results for the females.

	Swimming	**Cycling**	**Running**
Male	2	6	4
Female	8	5	5

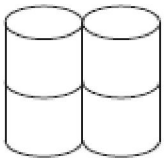
(*b*) Work out the percentage of the 30 people that are female.

Question 8 (AO2): 34% of students got this right (3 marks)

18.



Pack of 9 toilet rolls £4.23



Pack of 4 toilet rolls £1.96

A pack of 9 toilet rolls costs £4.23

A pack of 4 toilet rolls costs £1.96

Which pack gives the better value for money?

You must show all your working.

.....

(Total 3 marks)

Question 9 (AO1): (No Calc) 34% of students got this right (3 marks)

6 Here are the instructions for making a drink.

Add 100 m*l* of juice to 2 litres of water

Dev uses 5 litres of water to make the drink.

How much drink has he made?

Question 10 (AO2): 34% of students got this right (3 marks)

12. On Monday Ravi drives for 4 hours.
His average speed is 30 mph.

(*a*) How far does Ravi drive on Monday?

On Tuesday Ravi drives 200 km.

5 miles = 8 kilometres.

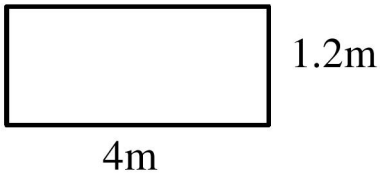
(*b*) On which day did Ravi drive further?

(3)

(Total 5 marks)

Question 11 (AO2): (No Calc) 34% of students got this right (1 marks)

21b The diagram shows a rectangular wall.



Frank is going to cover the wall with rectangular tiles.
Each tile is 40 cm by 30 cm.

Frank is told that he should leave gaps between the tiles.

(b) If Frank leaves gaps between the tiles, how could this affect the number of tiles he needs?

.....

.....

(1)

(Total for Question 21 is 6 marks)

Question 12 (AO1): 34% of students got this right (1 marks)

4. Work out $(-5)^2$

.....

(Total 1 mark)

Question 13 (AO1): 34% of students got this right (5 marks)

13. A charity made an appeal for money.

The charity put the information shown below on a poster.

Hunger appeal

- £3 will buy 5 meals for one person.
- £100 will buy lunches for 80 school children for 5 days.

£3 will buy 5 meals for one person.

(*a*) Work out the cost of one of the meals.
Give your answer in pence.

..... p
(2)

£100 will buy lunches for 80 school children for 5 days.

(*b*) Work out the cost of buying lunch for one school child for one day.

.....
(3)

(Total 5 marks)

Question 14 (AO1): 32% of students got this right (4 marks)

17 A shopkeeper uses this formula to work out the cost of bags of oranges.

$C = 1.6n$

C is the cost in £

n is the number of bags

17 (a) Work out the cost of 8 bags. **[2 marks]**

Answer £ _____

17 (b) There are four oranges in each bag.
Work out the average cost of an orange. Give your answer in pence. **[2 marks]**

Answer _____ pence

Question 15 (AO1): (No Calc) 32% of students got this right (3 marks)

19 (*a*) Factorise $y^2 + 27y$

(*b*) Simplify $(t^3)^2$

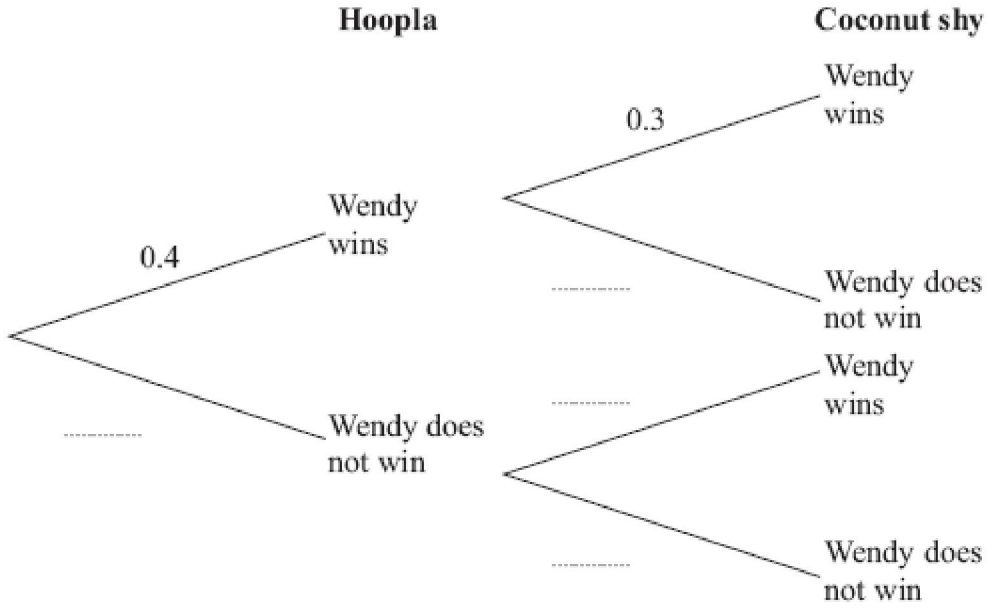
(*c*) Simplify $\frac{w^9}{w^4}$

Question 16 (AO1): 31% of students got this right (4 marks)

19. Wendy goes to a fun fair.
She has one go at Hoopla.
She has one go on the Coconut shy.

The probability that she wins at Hoopla is 0.4
The probability that she wins on the Coconut shy is 0.3

(*a*) Complete the probability tree diagram.



(2)

(*b*) Work out the probability that Wendy wins at Hoopla and also wins on the Coconut shy.

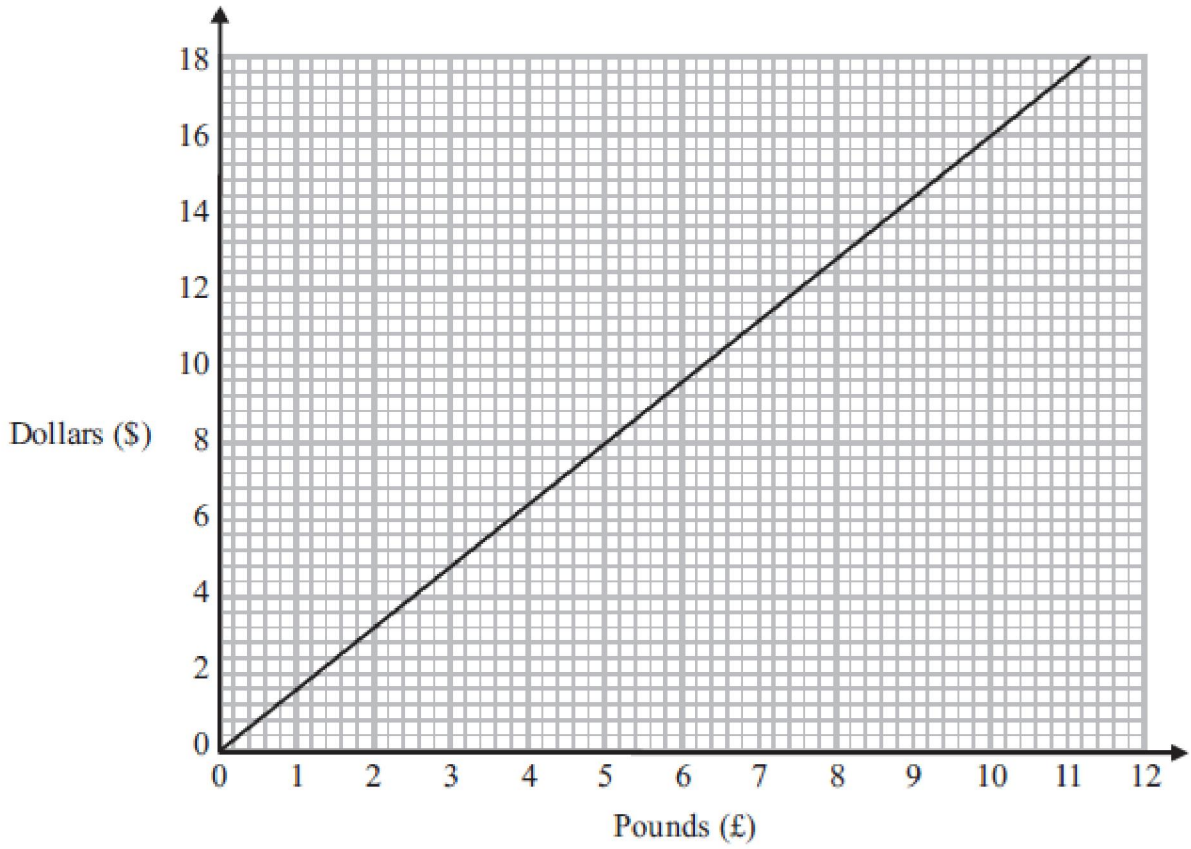
.....

(2)

(Total 4 marks)

Question 17 (AO1): 31% of students got this right (5 marks)

17. You can use this conversion graph to change between pounds (£) and dollars ($).



(a) Use the conversion graph to change £5 to dollars.

$ .....

(1)

Ella has $200 and £800
Her hotel bill is $600

Ella pays the bill with the $200 and some of the pounds.

(b) Use the conversion graph to work out how many pounds she has left.

£ .....

(4)

(Total 5 marks)

Question 18 (AO1): 30% of students got this right (2 marks)

24 Here are the first five terms of a sequence.

2 8 18 32 50

(*a*) Find the next term of this sequence.

The *n*th term of a different sequence is $3n^2 - 10$

(*b*) Work out the 5th term of this sequence.

Question 19 (AO1): (No Calc) 30% of students got this right (2 marks)

19 (*a*) Solve $4(x - 5) = 18$

$x =$ .....

(2)

Question 20 (AO1): 29% of students got this right (3 marks)

23. Ramesh throws a biased coin.
The probability that the coin will land on a Head is 0.37

(a) Write down the probability that the coin will land on a Tail.

.....

(1)

Ramesh is going to throw the coin 500 times.

(b) Work out an estimate for the number of times that the coin will land on a Head.

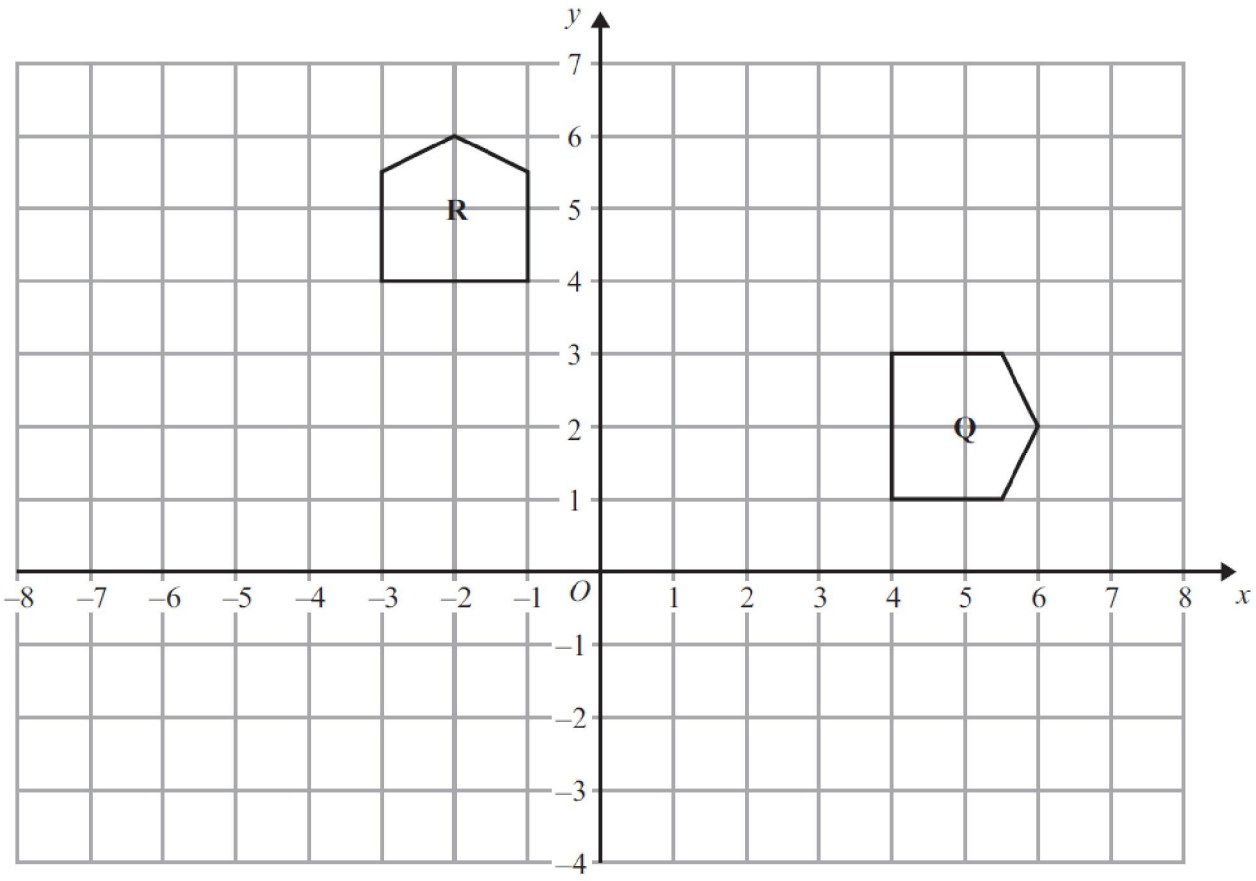
.....

(2)

(Total 3 marks)

Question 21 (AO2): 29% of students got this right (3 marks)

17.



(*b*) Describe fully the single transformation that maps shape **Q** onto shape **R**.

.....

.....

.....

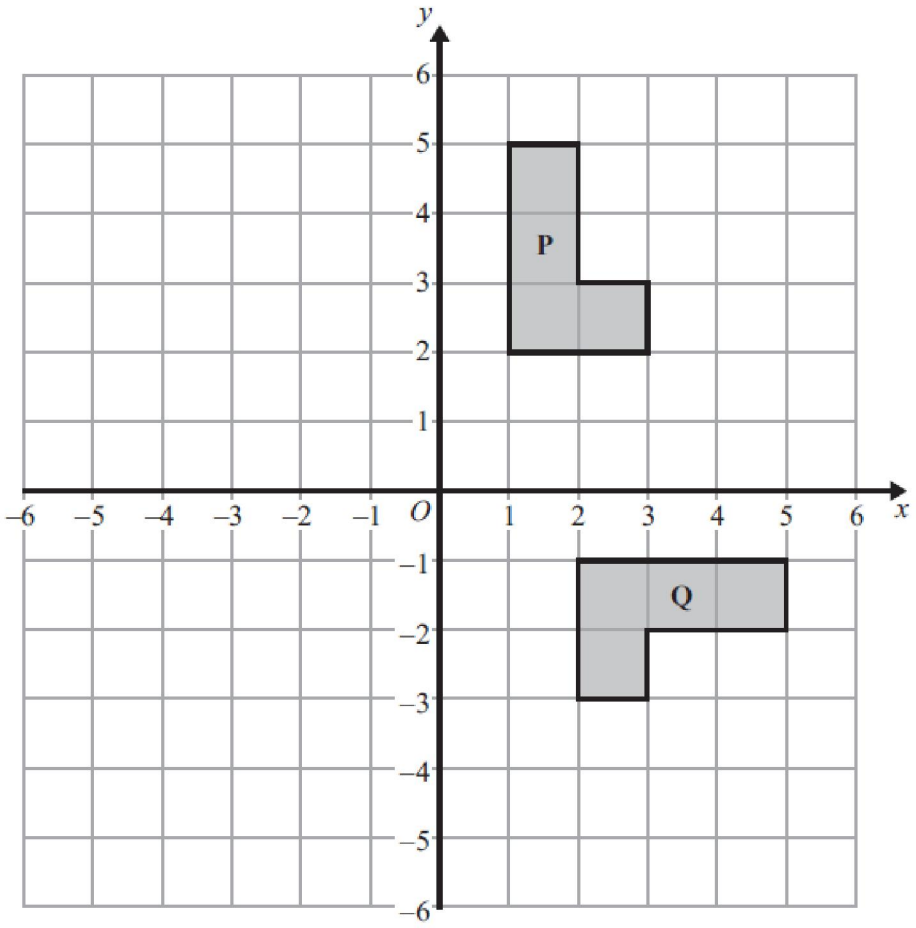
.....

(3)

(Total 4 marks)

Question 22 (AO2): 28% of students got this right (3 marks)

20.



Describe fully the **single** transformation that maps shape **P** onto shape **Q**.

.....

.....

(Total 3 marks)

Question 23 (AO1): (No Calc) 28% of students got this right (2 marks)

20 (*a*) Write $\dfrac{3^5 \times 3^4}{3^2}$ as a power of 3.

Question 24 (AO2): 28% of students got this right (4 marks)

18. Mr Brown and his 2 children are going to London by train.

An adult ticket costs £24.
A child ticket costs £12.

Mr Brown has a Family Railcard.

Family Railcard gives
$\frac{1}{3}$ off adult tickets
60% off child tickets

Work out the total cost of the tickets when Mr Brown uses his Family Railcard.

Question 25 (AO2): 28% of students got this right (4 marks)

12. Denise wants to give a pen set to every student in her school.
There are 799 students in the school.

Denise already has 102 pen sets.
She will need to buy more pen sets.
Each pen set costs 89 pence.

(a) Work out an estimate for the total cost of the pen sets Denise needs to buy.

.....

(3)

(b) Is your answer to (a) an underestimate or an overestimate?
Give a reason for your answer.

.....

.....

(1)

(Total for Question 12 is 4 marks)

Question 26 (AO1): (No Calc) 27% of students got this right (3 marks)

9 The formulae below can be used to work out the cost, £C, of a taxi journey of x miles with three different taxi companies.

Reliable Taxis	**Speedy Taxis**	**City Taxis**
$C = 1.5x$	$C = 1.1x + 11.5$	$C = 1.25x + 8$

Which is the cheapest company to use for a taxi journey of 40 miles?
You must show how you get your answer.

(Total for Question 9 is 3 marks)

Question 27 (AO1): (No Calc) 27% of students got this right (3 marks)

17 Irena sells ice creams.
One day she sells 80 ice creams.
The next day she sells 108 ice creams.
Work out the percentage increase in the number of ice creams she sells.

Question 28 (AO1): (No Calc) 26% of students got this right (4 marks)

16 (a) Work out $\frac{1}{5} + \frac{2}{7}$

Give your answer as a fraction.

[2 marks]

Answer _____

16 (b) Work out $\frac{7}{3} \times \frac{8}{5}$

Give your answer as a mixed number.

[2 marks]

Answer _____

Question 29 (AO3): (No Calc) 26% of students got this right (4 marks)

22 At a lucky dip stall, players pick a ball at random from a tub and then replace it.



The tub contains 280 red balls
120 yellow balls
100 green balls.

Emma has 15 picks.

22 (a) What is the probability that Emma wins a prize with her first pick?

[2 marks]

Answer _____

22 (b) With her 20 picks, Emma wins 6 prizes.
Is this **more** than the expected number?

You **must** show your working.

[2 marks]

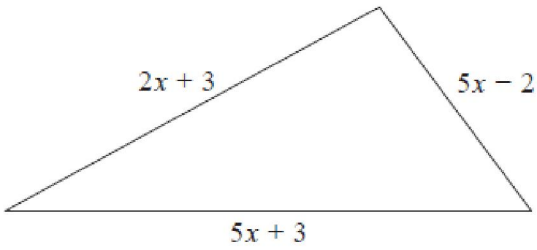
Answer _____

Ext Qn1 (AO1): Only 22% of students got this right(3 marks)

25 Write 504 as a product of powers of its prime factors.

Ext Qn2 (AO1): (No Calc) Only 22% of students got this right(3 mark

20. The perimeter of a square has the same length as the perimeter of this triangle.



All measurements are in centimetres.

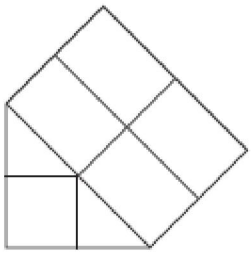
Find an expression, in terms of x, for the length of a side of the square.
Give your answer in its simplest form.

.....

(Total for Question 20 is 3 marks)

Ext Qn3 (AO2): Only 22% of students got this right(3 marks)

17. Here is a prism.
It is made by cutting a solid cube of side 2 cm in half.



Find the volume of the prism.

.....

(Total 3 marks)

Answers to Qn 1 (AO1): 39% of students got this right

Question		Answer	Mark	Notes
21	(a)	Correct position	2	B2 for correct shape in correct position (B1 for any incorrect translation of correct shape)

Answers to Qn 2 (AO1): (No Calc) 39% of students got this right

Part	Working or answer an examiner might expect to see	Mark	Notes
23	36 2, 18 2, 2, 9 2, 2, 3, 3	1	This mark is given for a complete method to find prime factors, which could be shown on a complete factor tree with no more than one arithmetic error
	$2 \times 2 \times 3 \times 3$	1	This mark is given for the correct answer only

Answers to Qn 3 (AO2): 37% of students got this right

Question		Working	Answer	Mark	Notes
19.			240	4	M1 for 16 × 2 (= 32 girls) M1 for 16 + '16 × 2' (= 48) M1 (dep on the previous M1) for (16 + '32') × 5 **or** (16 + '32') × (4 + 1) A1 cao **OR** M1 for 1 : 2 = 3 parts M1 for 5 schools × 3 parts (= 15 parts) M1 (dep on the previous M1) for '15' parts × 16 A1 cao

Answers to Qn 4 (AO1): 36% of students got this right

Question		Working	Answer	Mark	Notes
16	(b)		Diagram or chart	4	B1 for a key, or suitable labels, to identify regular yoghurt and low fat yoghurt. B1 for diagram(s) or chart(s) set up for comparison, showing data for protein, carbohydrate and fat, e.g. dual bar chart, line graph, etc B1 for correct heights for regular yoghurt **or** low fat yoghurt, dependent on a linear scale C1 for a fully correct diagram or chart to include labels for protein, carbohydrate and fat and vertical axis correctly scaled and labelled

Answers to Qn 5 (AO1): (No Calc) 35% of students got this right

21 Solve $\frac{y}{4} - 12 = 8$

$\frac{y}{4} = 20$

$y =$ 80

Answers to Qn 6 (AO1): (No Calc) 35% of students got this right

Paper 1MA1: 1F			
Question	**Working**	**Answer**	**Notes**
5 c		Correct line	B1

Answers to Qn 7 (AO1): (No Calc) 35% of students got this right

Paper 1MA1: 1F			
Question	**Working**	**Answer**	**Notes**
14 b		60	M1 $\frac{8+5+5}{30}$ or ft their diagram A1 60%

Answers to Qn 8 (AO2): 34% of students got this right

18.		$1.96 \times 2.25 = 4.41$ **OR** $4.23 \div 9 = 0.47$ $1.96 \div 4 = 0.49$ **OR** $4.23 \times 4 = 16.92$ $1.96 \times 9 = 17.64$ **OR** $4.23 \div 9 = 0.47$ $0.47 \times 4 = 1.88$ **OR** $1.96 \div 4 = 0.49$ $0.49 \times 9 = 4.41$ **OR** $9 \div 4.23 = 2.12$ $4 \div 1.96 = 2.04$	Pack of 9	3	M2 for a fully correct method to enable a conclusion eg $1.96 \times 2¼$ **OR** M1 for $4.23 \div 9$ or $423 \div 9$ **or** 0.47 seen **or** 47 seen M1 for $1.96 \div 4$ or $196 \div 4$ or 0.49 seen or 49 seen **OR** M1 for 4.23×4 **or** 423×4 **or** 16.92 seen **or** 1692 seen M1 for 1.96×9 **or** 196×9 **or** 17.64 seen **or** 1764 seen **OR** M1 for $4.23 \div 9$ **or** $423 \div 9$ **or** 0.47 seen **or** 47 seen M1 for 0.47×4 **or** 47×4 **or** 1.88 seen **or** 188 seen **OR** M1 for $1.96 \div 4$ **or** $196 \div 4$ **or** 0.49 seen **or** 49 seen M1 for 0.49×9 **or** 49×9 **or** 4.41 seen **or** 441 seen **OR** M1 for $9 \div 4.23$ **or** 2.12(...) seen **or** 2.13 seen M1 for $4 \div 1.96$ **or** 2.04(...) seen A1 for Pack of 9 and fully correct calculations **NOTE:** B0 for an answer of 9 not supported by working.

Answers to Qn 9 (AO1): (No Calc) 34% of students got this right

Paper 1MA1: 1F			
Question	**Working**	**Answer**	**Notes**
6		5.25 litres	P1 for start to process eg. 5 ÷ 2 (=2.5) P1 for complete process eg. 5000 + 2.5×100 A1 or 5250 m*l*

Answers to Qn 10 (AO2): 34% of students got this right

12.	(*b*)		Tuesday 125 miles > 120 miles 200 km > 192 km	3	M1 for 200 ÷ 8 × 5 or "120" ÷ 5 × 8 A1 for 125 or 192 or ft from "a" C1 (dep M1) Correct conclusion for their calculated figure with its correct units stated. of "125" miles and "a" miles **or "**192" km and 200 km

Answers to Qn 11 (AO2): (No Calc) 34% of students got this right

21 Frank is told that he should leave gaps between the tiles.

(b) If Frank leaves gaps between the tiles, how could this affect the number of tiles he needs?

These will be fewer tiles needed

Answers to Qn 12 (AO1): 34% of students got this right

4.			25	B1	cao

Answers to Qn 13 (AO1): 34% of students got this right

13.	(a)		60	2	M1 for 300 ÷ 5 or 3 ÷ 5 (or equivalent) A1 cao
	(b)		25p or £0.25	3	M1 for 100 ÷ 5 (= 20) M1 for "20" ÷ 80 or "20" × 100 ÷ 80 A1 for 25p or £0.25 **OR** M1 for 80 × 5 (= 400) M1 for 100 ÷ "400" or 100 × 100 ÷ "400" A1 for 25p or £0.25 **OR** M1 for 100 ÷ 80 (= 1.25) M1 for "1.25" ÷ 5 or "1.25" × 100 ÷ 5 A1 for 25p or £0.25

Answers to Qn 14 (AO1): 32% of students got this right

17 A shopkeeper uses this formula to work out the cost of bags of oranges.

$C = 1.6n$

C is the cost in £

n is the number of bags

17 (a) Work out the cost of 8 bags.

1.60×8

Answer £ 12.60

17 (b) There are four oranges in each bag.
Work out the average cost of an orange.

Give your answer in pence.

$1.60 \div 4 = 0.4$

Answer 40 pence

Answers to Qn 15 (AO1): (No Calc) 32% of students got this right

Paper 1MA1: 1F			
Question	**Working**	**Answer**	**Notes**
19 a		$y(y+27)$	B1
b		t^6	B1
c		w^5	B1

Answers to Qn 16 (AO1): 31% of students got this right

19.	(*a*)		0.6	2	B1 for 0.6 in correct position on tree diagram
			0.7, 0.3, 0.7		B1 for 0.7, 0.3, 0.7 in correct positions on tree diagram
	(*b*)	0.4 × 0.3 =	0.12	2	M1 for 0.4 × 0.3 oe **or** a complete alternative method ft from tree diagram
					A1 for 0.12 oe

Answers to Qn 17 (AO1): 31% of students got this right

17.	(a)		8	1	B1 for 8 (.00)
	(b)		550	4	M1 for 600 – 200 (= 400) M1 for correct method to convert '$400' to £ M1 (dep on the previous M1) for 800 – '$400' in £s A1 for value in the range 540 –560 **OR** M1 for correct method to convert $600 **and** $200 to pounds M1 for '375'–'125' M1 (dep on the previous M1) 800 –'250' A1 for a value in the range 540-560 **OR** M1 for correct method to convert £800 to dollars M1 for '1280' + 200 – 600 M1 (dep on the previous M1) for attempt to convert '$880' back to £ A1 for value in the range 540 – 560

Answers to Qn 18 (AO1): 30% of students got this right

Paper 1MA1: 1F			
Question	**Working**	**Answer**	**Notes**
24 (a)		72	B1 cao
(b)		65	B1 cao

Answers to Qn 19 (AO1): (No Calc) 30% of students got this right

Question 19 (Total 4 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
(a)	$4x - 20 = 18$	M1	This mark is given for expanding brackets as a first step to solving the equation
	$4x = 38, \quad x = 9.5$	A1	This mark is given for the correct answer only

Answers to Qn 20 (AO1): 29% of students got this right

23.	(a)	1 – 0.37	0.63	1	B1 for 0.63 (or equivalent)
	(b)	0.37 × 500	185	2	M1 for 0.37 × 500 A1 cao SC B1 for 200

Answers to Qn 21 (AO2): 29% of students got this right

Question		Working	Answer	Mark	Notes
17	(b)		Rotation centre (0,0) 90° anticlockwise	3	B1 rotation B1 (centre) (0,0) B1 90° anticlockwise or 270° clockwise Note: award no marks if more than one transformation is given

Answers to Qn 22 (AO2): 28% of students got this right

20.			Rotation Centre (0,0) 90° clockwise	3	B1 for rotation B1 for 90° clockwise or 270° anticlockwise B1 for (0, 0) or *O* or origin NB: a combination of transformations gets B0

Answers to Qn 23 (AO1): (No Calc) 28% of students got this right

Question	Working	Answer	Mark	Notes
20 (a)		3^7	M1	for a first step using a rule of indices, e.g. $3^5 \times 3^4 = 3^{5+4}$ $(= 3^9)$ or $3^5 \div 3^2 = 3^{5-2}$ $(= 3^3)$ or $3^4 \div 3^2 = 3^{4-2}$ $(= 3^2)$
			A1	cao

Answers to Qn 24 (AO2): 28% of students got this right

Question		Answer	Mark	Notes
18		25.60	4	M1 for a correct method to find $\frac{1}{3}$ of 24 (=8) or $\frac{2}{3}$ of 24 (=16) M1 for a correct method to find 60% (= 7.2) or 40% (= 4.8) of 12 or 60% (= 14.4) or 40% (= 9.6) of 24 M1 (dep on at least M1) for a method to find the sum of their discounted adult ticket + 2 × their discounted child ticket A1 25.6(0)

Answers to Qn 25 (AO2): 28% of students got this right

12	(a)		£630	P1	uses some estimation, e.g. states 90 or 700 or 800 or 100
				P1	starts process of multiplication using estimates, e.g. 90×700
				A1	cao Accept 63000p
	(b)		reasoning	C1	gives an answer based on their calculations, e.g. over-estimate since figures have been rounded up

Answers to Qn 26 (AO1): (No Calc) 27% of students got this right

9 The formulae below can be used to work out the cost, £C, of a taxi journey of x miles with three different taxi companies.

Reliable Taxis	**Speedy Taxis**	**City Taxis**
$C = 1.5x$	$C = 1.1x + 11.5$	$C = 1.25x + 8$

Which is the cheapest company to use for a taxi journey of 40 miles?
You must show how you get your answer.

RT ⇒ $C = 1.5x$
$= 1.5(40)$
$= £60.$

ST ⇒ $C = 1.1x + 11.5$
$= 1.1(40) + 11.5$
$= 44 + 11.5$
$= £55.50.$

CT ⇒ $C = 1.25x + 8$
$= 1.25(40) + 8$
$= £50 + 8.$
$= £58.$

∴ Speedy taxis is the cheapest co to use for a taxi journey of 40 miles

Answers to Qn 27 (AO1): (No Calc) 27% of students got this right

Paper 1MA1: 1F			
Question	**Working**	**Answer**	**Notes**
17		35	M1 for method to find increase 108 – 80 (= 28) M1 A1 for method to find % increase eg $\frac{28}{80} \times 100$ cao

Answers to Qn 28 (AO1): (No Calc) 26% of students got this right

16 (a) Work out $\frac{1}{5} + \frac{2}{7}$

Give your answer as a fraction.

$\frac{1}{5} + \frac{2}{7}$

$\frac{7}{35} + \frac{10}{35}$

Answer $\frac{17}{35}$

16 (b) Work out $\frac{7}{3} \times \frac{8}{5}$

Give your answer as a mixed number.

$\frac{7 \times 8}{3 \times 5}$

$\frac{56}{15}$

Answer $3\frac{11}{15}$

Answers to Qn 29 (AO3): (No Calc) 26% of students got this right

22 At a lucky dip stall, players pick a ball at random from a tub and then replace it.



The tub contains 280 red balls
120 yellow balls
100 green balls.

Emma has 15 picks.

22 (a) What is the probability that Emma wins a prize with her first pick?

280 + 120 + 100 = 500

Answer $\frac{100}{500}$

22 (b) With her 20 picks, Emma wins 6 prizes.
Is this **more** than the expected number?

You **must** show your working.

Expected number = $\frac{100}{500} \times 20$

4

Answer Yes, it is more than the expected

Ext ANSWERS 1 (AO1): Only 22% of students got this right(3 mark

Paper 1MA1: 1F			
Question	**Working**	**Answer**	**Notes**
25		$2^3 \times 3^2 \times 7$	M1 for at least 3 correct divisions by a prime factor (may be seen in a factor tree) M1 for 2, 2, 2, 3, 3, 7 (condone inclusion of 1); may be seen in a factor tree A1

Ext ANSWERS 2 (AO1): (No Calc) Only 22% of students got this rigl

20		$3x + 1$	P1	process to start to problem, e.g. states perimeter algebraically, e.g. $2x + 3 + 5x - 2 + 5x + 3$
			P1	(dep P1) continues process, e.g. simplifies to $12x + 4$ or divides their linear expression (linked to perimeter) by 4
			A1	cao

Ext ANSWERS 3 (AO2): Only 22% of students got this right(3 mark

17.		$2 \times 2 \times 2 = 8$ $8 \div 2 = 4$	4 cm^3	3	M1 for $2 \times 2 \times 2 \div 2$ oe or $1 + 1 + 0.5 + 0.5 + 0.5 + 0.5$ oe A1 cao B1 (indep) for cm^3