PINPOINT REVISION PACKS

60_to_83_Percent_Pinpoint_AI_Pack

Time Allocation = 85mins , Max = 75 Marks

Calculated Grade Boundaries:

Grade	Marks
6-	11
6	22
6+	33
7-	43
7	54
7+	65
8-	75

Question 1 (AO3): (No Calc) 39% of students got this right (2 marks)

9. x and y are two numbers each greater than 3

The Highest Common Factor (HCF) of x and y is 3
The Lowest Common Multiple (LCM) of x and y is 36

Find x and y.

.....

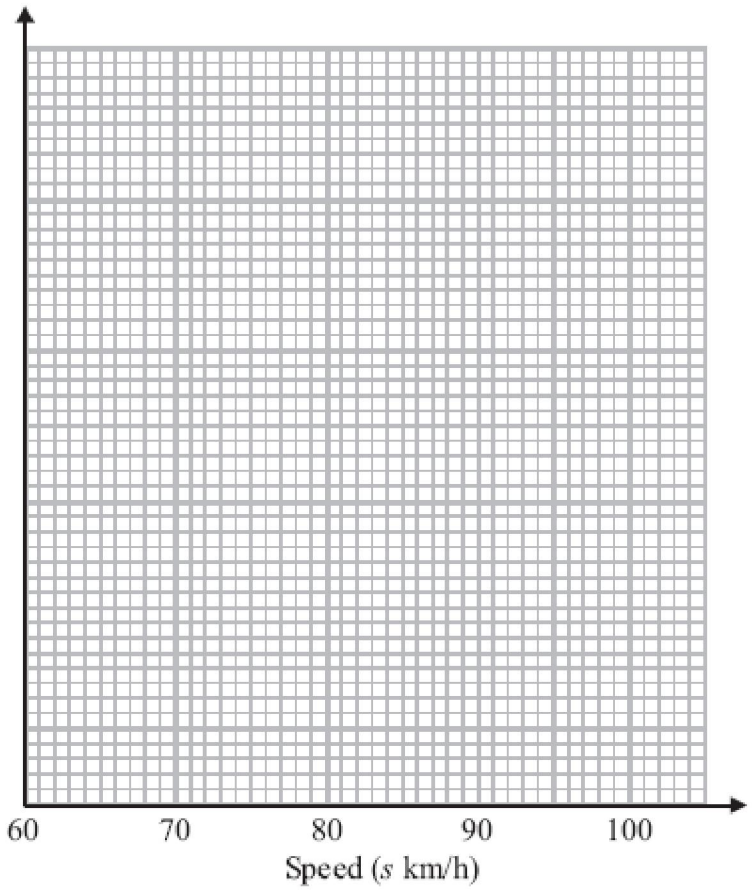
(Total 2 marks)

Question 2 (AO2): (No Calc) 38% of students got this right (5 marks)

11. The table gives some information about the speeds, in km/h, of 100 cars.

Speed(s km/h)	Frequency
$60 < s \leq 65$	15
$65 < s \leq 70$	25
$70 < s \leq 80$	36
$80 < s \leq 100$	24

(a) On the grid, draw a histogram for the information in the table.



(3)

(b) Work out an estimate for the number of cars with a speed of more than 85 km/h.

.....

(2)

(Total 5 marks)

Question 3 (AO2): (No Calc) 37% of students got this right (4 marks)

4 On Tuesday, Thyreece travelled by train from Leicester to Bristol.

Thyreece's train left Leicester at 09 45
It got to Bristol at 12 15
The train travelled at an average speed of 110 miles per hour.

On Thurday, Gisella travelled by train from Leicester to Bristol.

Gisella's train also left at 09 45 but was diverted.
The train had to travel an extra 37 miles.
The train got to Bristol at 12 45

Work out the difference between the average speed of Thyreece's train and the average speed of Gisella's train.

..... miles per hour

(Total for Question 4 is 4 marks)

Question 4 (AO1): (No Calc) 37% of students got this right (6 marks)

17. (a) Rationalise the denominator of $\frac{6}{\sqrt{5}}$

.....

(2)

(b) Expand and simplify $(2 + \sqrt{10})(\sqrt{5} + \sqrt{20})$

.....

(4)

(Total 6 marks)

Question 5 (AO1): (No Calc) 37% of students got this right (3 marks)

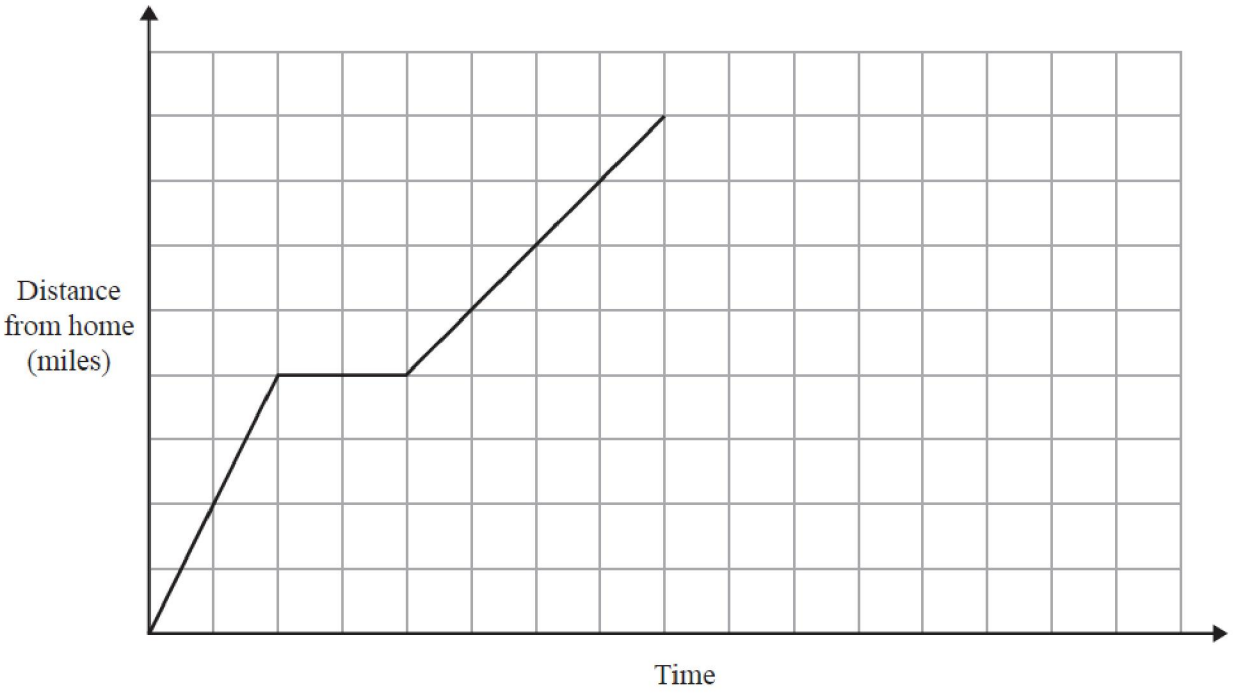
12. (a) Simplify fully $\dfrac{x^2+3x-4}{2x^2-5x+3}$

.....

(3)

Question 6 (AO2): (No Calc) 36% of students got this right (4 marks)

6 On Tuesday Rihanna delivered a package to a hotel.
The travel graph represents Rihanna's journey to the hotel.



Rihanna left home at 15 00
She drove for 30 minutes at a constant speed of 40 mph.
She then stopped for a break.

Rihanna then drove to the hotel at a constant speed.
She was at the hotel for 30 minutes.
She then drove home at a constant speed of 35 mph.

Show that she does not arrive home before 18 30

(Total for Question 6 is 4 marks)

Question 7 (AO3): (No Calc) 35% of students got this right (3 marks)

9 A firm orders a number of chairs from a workshop.

6 workers in the workshop could make all the chairs in 8 days.
All the workers work at the same rate.

For 3 days, only 4 of the workers are available to make the chairs.
From the 4th day, all 6 workers can work.

Work out the total number of days taken to make all the chairs.

..... days

(Total for Question 9 is 3 marks)

Question 8 (AO3): (No Calc) 34% of students got this right (4 marks)

19. P is inversely proportional to V.

When $V = 8$, $P = 5$

(a) Find a formula for P in terms of V.

$P =$ .....

(3)

(b) Calculate the value of P when $V = 2$

.....

(1)

(Total 4 marks)

Question 9 (AO2): (No Calc) 33% of students got this right (2 marks)

8 Shape **X** is translated by the vector $\begin{pmatrix} 2 \\ -8 \end{pmatrix}$ to make Shape **Y**.

Shape **Y** is then translated by the vector $\begin{pmatrix} -6 \\ -3 \end{pmatrix}$ to make Shape **Z**.

Describe the single transformation that maps Shape **X** onto Shape **Z**.

.....

.....

.....

(**Total for Question 8 is 2 marks**)

Question 10 (AO1): (No Calc) 32% of students got this right (3 marks)

12. (b) Write $\frac{4}{x+2} + \frac{3}{x-2}$ as a single fraction in its simplest form.

.....

(3)

Question 11 (AO1): (No Calc) 30% of students got this right (1 marks)

16 b

Eoin expands $(2x - 1)(x - 3)(4x + 1)$

He gets $6x^3 - 26x^2 + 5x - 3$

(b) Explain why Eoin's solution cannot be correct.

.....

.....

.....

.....

(1)

Question 12 (AO2): 30% of students got this right (4 marks)

18.

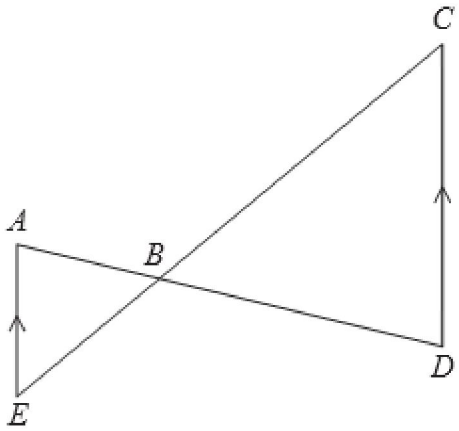


Diagram **NOT** accurately drawn

AE is parallel to *CD*.
ABD and *EBC* are straight lines.

Prove that triangle *ABE* is similar to triangle *DBC*.
Give reasons for each stage of your proof.

(Total 4 marks)

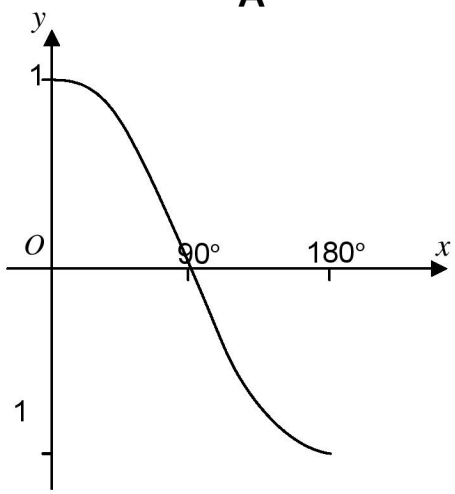
Question 13 (AO1): 30% of students got this right (1 marks)

16 One of these is a sketch of $y = \cos x$ for $0° \leqslant x \leqslant 180°$
Which one?

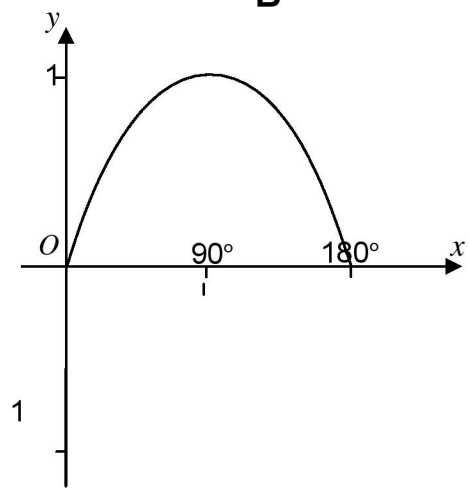
Circle the correct letter.

[1 mark]

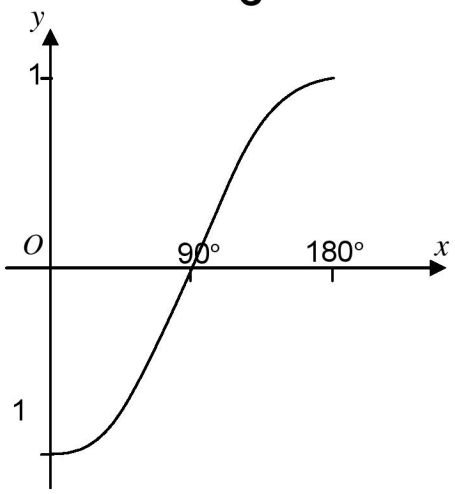
A



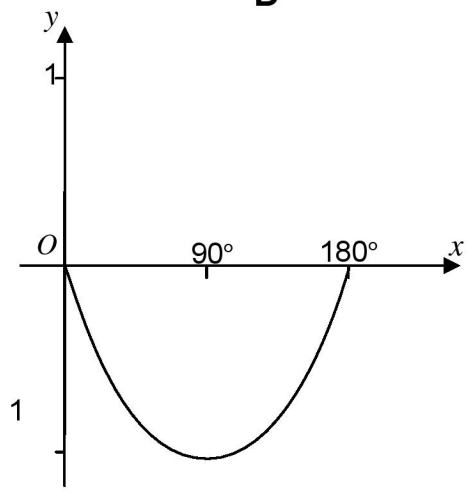
B



C

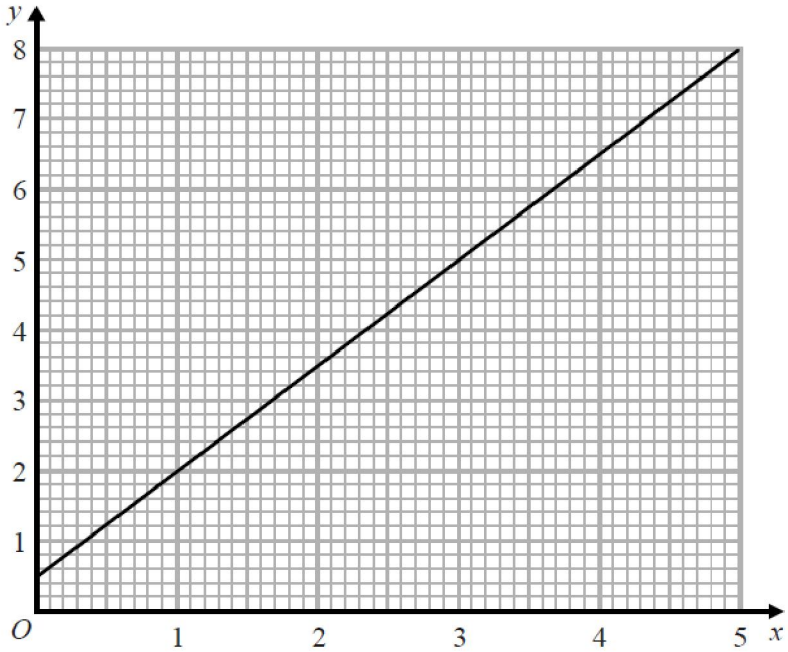


D



Question 14 (AO1): (No Calc) 28% of students got this right (3 marks)

2 b



Deliveries cost \$ y for x miles.

The graph gives the values of y for values of x from 0 to 5.

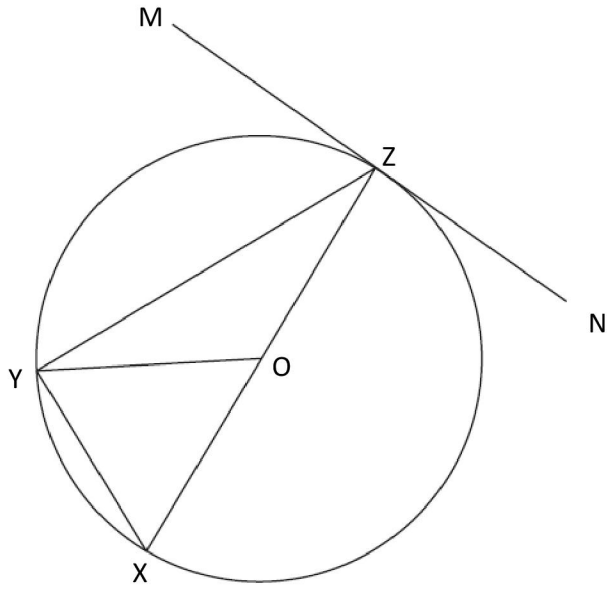
(b) Write the equation of the straight line in the form $y = m\,x + c$

.....

(3)

Question 15 (AO3): (No Calc) 28% of students got this right (4 marks)

17



X, *Y* and *Z* are points on the circumference of a circle centre *O*.

NZM is a tangent to the circle.

Angle *YZM* = 54°

Find the size of angle *XOY*.
You must give a reason for each stage of your working.

Question 16 (AO2): (No Calc) 26% of students got this right (4 marks)

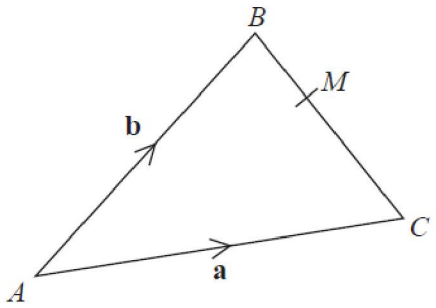
15. n is an integer greater than 1.

Use algebra to show that $(n^2 - 1) + (n - 1)^2$ is always equal to an even number.

(Total 4 marks)

Question 17 (AO2): (No Calc) 25% of students got this right (1 marks)

16 a



M is the point such that $BM : MC$ is 1 : 2

Here is Burt's method to find $\overrightarrow{BM}$ in terms of **a** and **b**.

$$\begin{aligned}\overrightarrow{BC} &= \overrightarrow{BA} + \overrightarrow{AC} \\ &= -\mathbf{b} + \mathbf{a} \\ &= \mathbf{a} - \mathbf{b} \\ \overrightarrow{BM} &= \frac{1}{2}\overrightarrow{BC} \\ &= \frac{1}{2}(\mathbf{a} - \mathbf{b})\end{aligned}$$

(a) Evaluate Burt's method.

.....

.....

(1)

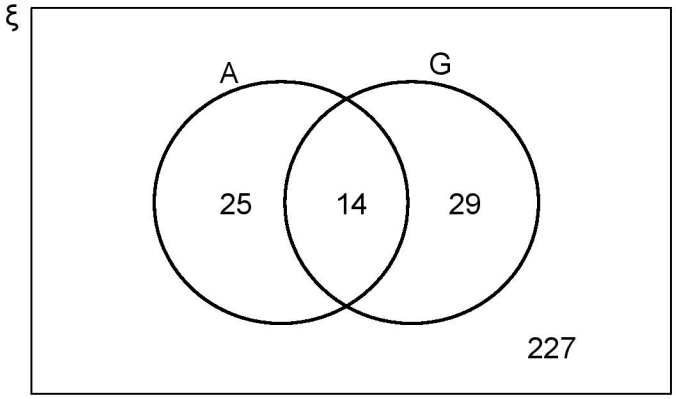
Question 18 (AO3): 25% of students got this right (5 marks)

25 In the Venn diagram

ξ = 295 students in a college

A = students who take Art

G = students who take Geography



25 (a) One student is chosen at random.
Work out the probability the student takes Art.

[1 mark]

Answer _____

25 (b) One student who takes Geography is chosen at random.
Work out the probability the student **also** takes Art.

[1 mark]

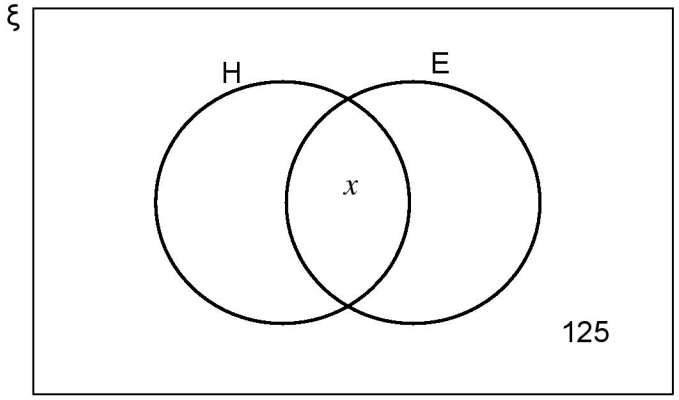
Answer _____

25 (c) In this Venn diagram

ξ = 295 students in the college

H = students who take History

E = students who take English



One-half of the students who take History also take English.

The number who take English is twice the number who take History.

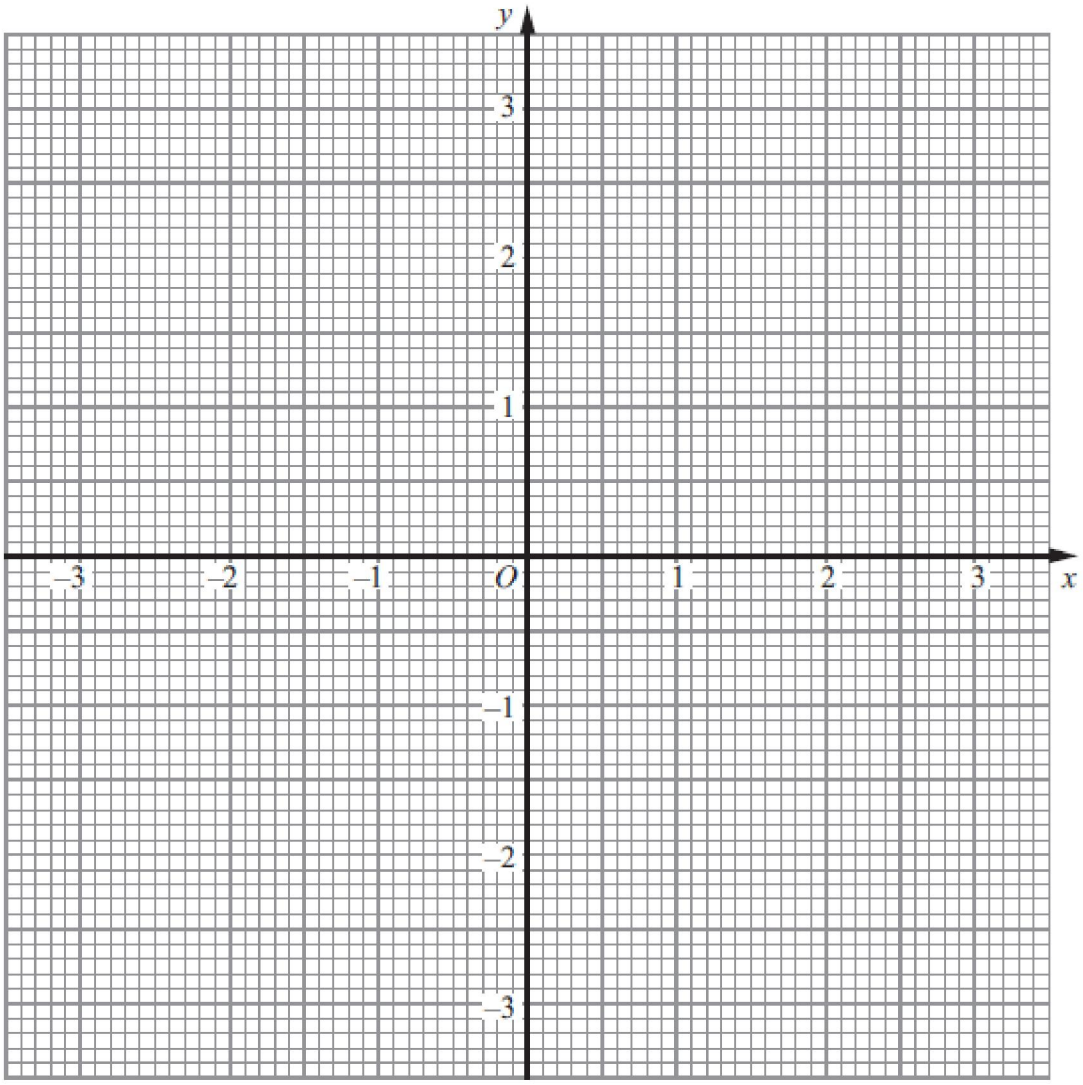
Work out the value of x.

Question Order Created by Pinpoint Learnings Automatic Differentiation Algorithmn

[3 marks]

Question 19 (AO2): (No Calc) 24% of students got this right (5 marks)

18. (a) Construct the graph of $x^2 + y^2 = 9$



(2)

(b) By drawing the line $x + y = 1$ on the grid, solve the equations $x^2 + y^2 = 9$
$x + y = 1$

$x =$ ..... , $y =$ .....

or $x =$ ..... , $y =$ .....

(3)

(Total 5 marks)

Question 20 (AO1): (No Calc) 23% of students got this right (1 marks)

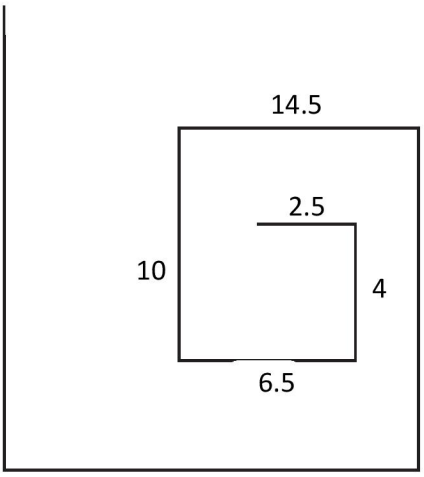
10 Find the value of $16^{-\frac{3}{4}}$

.....

(Total for Question 10 is 1 mark)

Question 21 (AO1): (No Calc) 22% of students got this right (3 marks)

18 The diagram shows the first 8 sides of a spiral pattern.
It also gives the lengths, in m, of the first 5 sides.



The lengths, in m, of the sides of the spiral form a sequence.

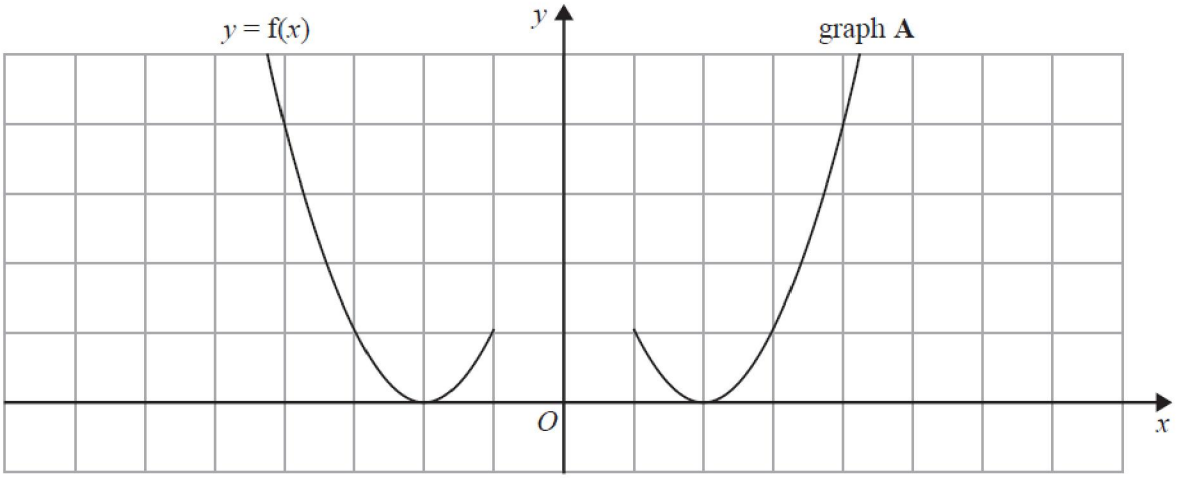
Find an expression in terms of n for the length, in m, of the nth side.

.....

(Total for Question 18 is 3 marks)

Question 22 (AO3): (No Calc) 19% of students got this right (1 marks)

22 a The graph of $y = f(x)$ is shown on the grid.



Graph **A** is a reflection of the graph of $y = f(x)$.

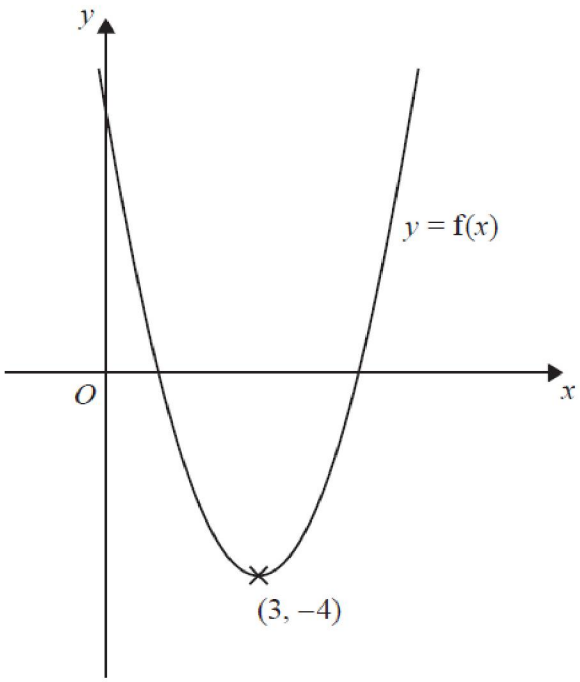
(a) Write down the equation of graph **A**.

.....

(1)

Question 23 (AO2): (No Calc) 19% of students got this right (3 marks)

20.



The diagram shows part of the curve with equation $y = f(x)$.
The coordinates of the minimum point of this curve are (3, –4).

Write down the coordinates of the minimum point of the curve with equation

(i) $y = f(x) + 3$

(..... , ...)

(ii) $y = f(2x)$

(..... , ...)

(iii) $y = f(-x)$

(..... , ...)

(Total 3 marks)

Question 24 (AO1): (No Calc) 19% of students got this right (3 marks)

14 Write $0.2\dot{3}\dot{1}$ as a fraction in its simplest form.

.....

(Total for Question 14 is 3 marks)

Ext Qn1 (AO3): (No Calc) Only 14% of students got this right(3 mark

17 (*b*) Simplify fully $\dfrac{3-4x-4x^2}{2x^2-7x+3}$

Ext Qn2 (AO2): (No Calc) Only 14% of students got this right(4 mark

20. Make b the subject of the formula:

$$a = \frac{5b + 7}{2 + b}$$

.....

(Total is 4 marks)

Ext Qn3 (AO2): (No Calc) Only 14% of students got this right(4 mark

16 n is an integer greater than 1

Prove algebraically that $n^2 - 2 - (n - 2)^2$ is always an even number.

(Total for Question 16 is 4 marks)

Answers to Qn 1 (AO3): (No Calc) 39% of students got this right

9.		HCF: The numbers must be $3n$ and $3m$ where n and m are co-prime and at most one is a multiple of 3 LCM: Factors of 36 are 1, 2, 3, 4, 6, 9, 12, 18, 36	9, 12	2	B2 cao (B1 for two numbers with HCF of 3 or LCM of 36)

Answers to Qn 2 (AO2): (No Calc) 38% of students got this right

11.	(a)	<table><tr><td>F</td><td>15</td><td>25</td><td>36</td><td>24</td></tr><tr><td>Fd</td><td>3</td><td>5</td><td>3.6</td><td>1.2</td></tr></table>	Correct histogram	3	B3 for fully correct histogram (overlay) (B2 for 3 correct blocks) (B1 for 2 correct blocks of different widths) SC : B1 for correct key, eg. 1 cm^2 = 5 (cars) **or** correct values for (freq ÷ class interval) for at least 3 frequencies (3, 5, 3.6, 1.2)
	(b)	$\frac{3}{4} \times 24$	18	2	M1 for $\frac{3}{4} \times 24$ (= 18) (or equivalent) **or** $\frac{1}{4} \times 24$ (= 6) (or equivalent) A1 cao **OR** M1 ft histogram for 15 × "1.2" **or** 5 × "1.2" A1 ft

Answers to Qn 3 (AO2): (No Calc) 37% of students got this right

4 On Tuesday, Thyreece travelled by train from Leicester to Bristol.

Thyreece's train left Leicester at 09 45
It got to Bristol at 12 15
The train travelled at an average speed of 110 miles per hour.

On Thurday, Gisella travelled by train from Leicester to Bristol.

Gisella's train also left at 09 45 but was diverted.
The train had to travel an extra 37 miles.
The train got to Bristol at 12 45

Work out the difference between the average speed of Thyreece's train and the average speed of Gisella's train.

Thyreece:

Time taken: 12:15 – 09:45 : 2 hrs 30 mins = 2.5 hrs

Average speed = $\frac{distance}{time}$ = 110 mph

Distance = $110 \times 2.5 = 275$ miles

Gisella:

Distance = 275 + 37 = 312 miles

Time taken = 3 hrs

Average speed= $\frac{distance}{time}$ = $\frac{312}{3}$ = 104 mph

Difference = 110 – 104 = 6 mph

..... miles per hour

(Total for Question 4 is 4 marks)

Answers to Qn 4 (AO1): (No Calc) 37% of students got this right

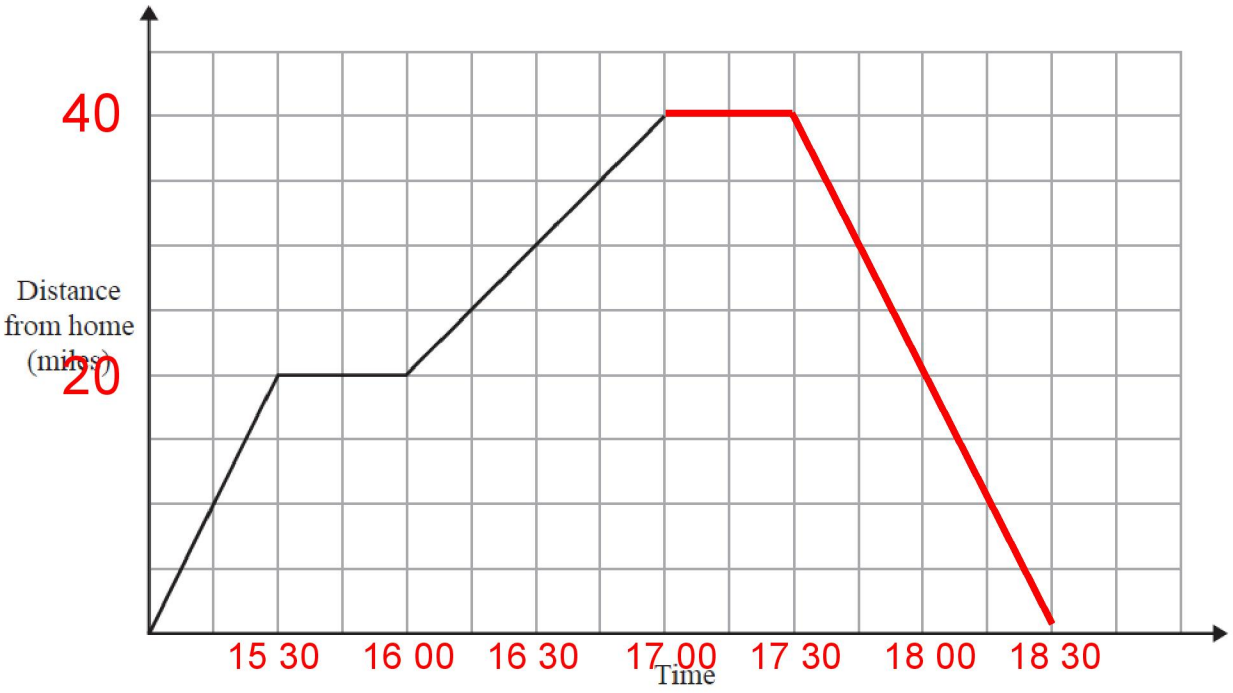
17.	(a)	$\frac{6}{\sqrt{5}} \times \frac{\sqrt{5}}{\sqrt{5}}$	$\frac{6\sqrt{5}}{5}$	2	M1 $\frac{6}{\sqrt{5}} \times \frac{\sqrt{5}}{\sqrt{5}}$ A1 cao
	(b)	$2\sqrt{5}+\sqrt{10}\ \sqrt{5}+$ $2\sqrt{20}+\sqrt{10}\ \sqrt{20}$ $2\sqrt{5}+\sqrt{50}+$ $2\sqrt{20}+\sqrt{200}$ $2\sqrt{5}+5\ \sqrt{2}\ +4\sqrt{5}+10\sqrt{2}$	$6\sqrt{5}+1$ $5\sqrt{2}$	4	M1 for 3 of no more than 4 correct terms of expansion, (may be shown in a table or without + signs) $2\sqrt{5}\ +\ \sqrt{10}\ \sqrt{5}\ +\ 2\sqrt{20}\ +\ \sqrt{10}\ \sqrt{20}$ (or equivalent) M1 or $\sqrt{50}$ or $\sqrt{(10\times5)}$ or $\sqrt{200}$ or $\sqrt{(20\times10)}$ M1 $5\ \sqrt{2}$ or $10\sqrt{2}$ or $4\sqrt{5}$ A1 cao

Answers to Qn 5 (AO1): (No Calc) 37% of students got this right

12.	(a)	$\frac{(x+4)(x-1)}{(2x-3)(x-1)}$	$\frac{x+4}{2x-3}$	3	M1 for $(x + 4)(x - 1)$ M1 for $(2x - 3)(x - 1)$ A1 cao

Answers to Qn 6 (AO2): (No Calc) 36% of students got this right

6 On Tuesday Rihanna delivered a package to a hotel.
The travel graph represents Rihanna's journey to the hotel.



Rihanna left home at 15 00
She drove for 30 minutes at a constant speed of 40 mph.
She then stopped for a break.

Rihanna then drove to the hotel at a constant speed.
She was at the hotel for 30 minutes.
She then drove home at a constant speed of 35 mph.

Show that she does not arrive home before 18 30

30 mins = 0.5 hours
Distance travelled after 30 mins = $40 \times 0.5 = 20$ miles
So total distance to hotel = 40 miles

To arrive by 18 30 needs to travel 40 miles in 1 hr or at 40mph

So speed of 35 mph slower than 40 mph so she won't arrive by 18 30

OR : time to travel home $\frac{40}{35} = \frac{8}{7} = 1\frac{1}{7}$ hours which is more than 1 hour

Question Order Created by Pinpoint Learnings Automatic Differentiation Algorithmn

(Total for Question 6 is 4marks)

Answers to Qn 7 (AO3): (No Calc) 35% of students got this right

9 A firm orders a number of chairs from a workshop.

6 workers in the workshop could make all the chairs in 8 days.
All the workers work at the same rate.

For 3 days, only 4 of the workers are available to make the chairs.
From the 4th day, all 6 workers can work.

Work out the total number of days taken to make all the chairs.

Suppose 1 worker makes 1 chair in 1 day.

6 workers in 8 days make $6 \times 8 = 48$ chairs made in total

4 workers in 3 days make $4 \times 3 = 12$ chairs

So $48 - 12 = 36$ chairs left to make

Now 6 workers so $36 \div 6 = 6$ days needed to complete chairs.

Total number of days = 3 + 6 = 9 days

..... 9..... days

(Total for Question 9 is 3 marks)

Answers to Qn 8 (AO3): (No Calc) 34% of students got this right

19.	(a)	$P = \frac{k}{V} : 5 = \frac{k}{8}$; $k = 40$	$P = \frac{40}{V}$	3	M1 for $P \propto \frac{1}{V}$ **or** $P = \frac{k}{V}$, k algebraic M1 for subs $P = 5$ and $V = 8$ into $P = \frac{k}{V}$ A1 for $P = \frac{40}{V}$
	(b)	$P = \frac{40}{2}$	20	1	B1 ft on k for $P = \frac{'k'}{V}$

Answers to Qn 9 (AO2): (No Calc) 33% of students got this right

8 Shape **X** is translated by the vector $\begin{pmatrix} 2 \\ -8 \end{pmatrix}$ to make Shape **Y**.

Shape **Y** is then translated by the vector $\begin{pmatrix} -6 \\ -3 \end{pmatrix}$ to make Shape **Z**.

Describe the single transformation that maps Shape **X** onto Shape **Z**.

$$\begin{pmatrix} 2 \\ -8 \end{pmatrix} + \begin{pmatrix} -6 \\ -3 \end{pmatrix} = \begin{pmatrix} -4 \\ -11 \end{pmatrix}$$

So is a translation by vector $\begin{pmatrix} -4 \\ -11 \end{pmatrix}$

.....

(Total for Question 8 is 2 marks)

Answers to Qn 10 (AO1): (No Calc) 32% of students got this right

12.	(b)	$\frac{4(x-2)}{(x+2)(x-2)}+\frac{3(x+2)}{(x+2)(x-2)}$	$\frac{7x-2}{(x+2)(x-2)}$	3	M1 for denominator $(x + 2)(x - 2)$ (or equivalent) **or** $x^2 - 4$ M1 for $\frac{4(x-2)}{(x+2)(x-2)}$ (or equivalent) **or** $\frac{3(x+2)}{(x+2)(x-2)}$ (or equivalent) (NB. The denominator must be $(x + 2)(x - 2)$ **or** $x^2 - 4$ **or** another suitable common denominator) A1 for $\frac{7x-2}{(x+2)(x-2)}$ **or** $\frac{7x-2}{x^2-4}$ SC: If no marks awarded then award B1 for $\frac{4(x-2)}{x^2-2}+\frac{3(x+2)}{x^2-2}$ (or equivalent)

Answers to Qn 11 (AO1): (No Calc) 30% of students got this right

16 b

Eoin expands $(2x - 1)(x - 3)(4x + 1)$

He gets $6x^3 - 26x^2 + 5x - 3$

(b) Explain why Eoin's solution cannot be correct.

The constant term is $(-1) \times (-3) \times (+1) = +3$
not -3

(1)

Answers to Qn 12 (AO2): 30% of students got this right

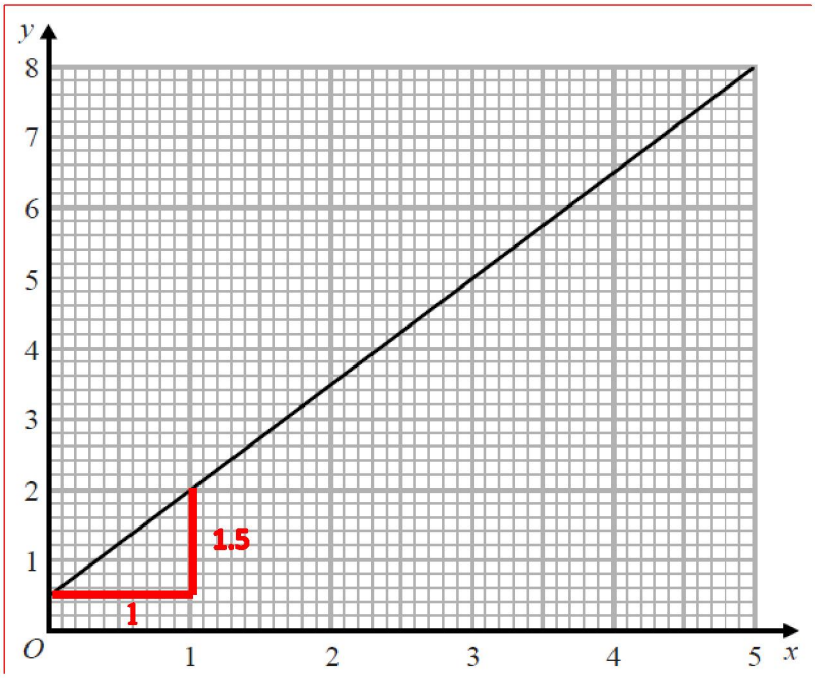
18.		*ABE* = angle *CBD* (vertically opposite angles) angle *EAB* = angle *CDB* (alternate angles) angle *AEB* = angle *BCD* (alternate angles) **OR** angle *EAB* = angle *CDB* (alternate angles) angle *AEB* = angle *BCD* (alternate angles) *ABE* = angle *CBD* (angles in a triangle sum to 180˚)	proof	4	M1 for any 2 pairs of angles correctly matched A1 for all 3 pairs correctly matched C2 (dep on M1)for full reasons and concluding statement (C1(dep on M1) for at least one reason)

Answers to Qn 13 (AO1): 30% of students got this right

16	A	B1	$19^2 = 361 \rightarrow 400$ (no other working)

Answers to Qn 14 (AO1): (No Calc) 28% of students got this right

2 b



Deliveries cost \$ y for x miles.

The graph gives the values of y for values of x from 0 to 5.

(b) Write the equation of the straight line in the form $y = mx + c$

Gradient: $m = \frac{change\ in\ y}{change\ in\ x} = \frac{1.5}{1} = 1.5$

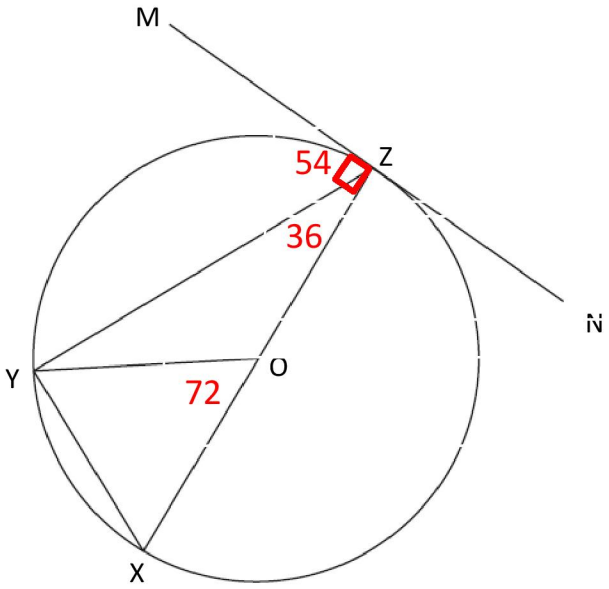
Equation: $y = 1.5x + 0.5$

.....

(3)

Answers to Qn 15 (AO3): (No Calc) 28% of students got this right

17



X, Y and Z are points on the circumference of a circle centre O.

NZM is a tangent to the circle.

Angle $YZM = 54°$

Find the size of angle XOY.
You must give a reason for each stage of your working.

Diameter intersects tangent at $90°$
So $YZO = 90 - 54 = 36°$

Angle subtended to center double that at circumference
So $XOY = 2 \times 36 = 72°$

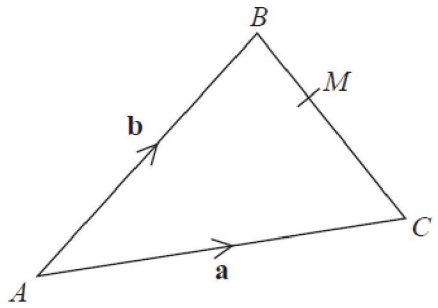
(Total for Question 17 is 4 marks)

Answers to Qn 16 (AO2): (No Calc) 26% of students got this right

15.			Correct proof	4	M1 expands $(n-1)^2$ with at least three out of four terms correct **or** $n^2 - n - n + 1$ **or** $n^2 - 2n + 1$ M1 $n^2 - 1 + n^2 - n - n + 1$ **or** $2n^2 - 2n$ A1 $2(n^2 - n)$ **or** $2n(n-1)$ C1 (dep on M1) for conclusion $2 \times$ '$(n^2 - n)$' or $2 \times n \times$ '$(n-1)$' is always even OR M1 factorises $n^2 - 1$ correctly $(n-1)(n+1)$ M1 $(n-1)(n+1+n-1)$ A1 $2n(n-1)$ C1 (dep on M1) for conclusion $2 \times$ '$(n^2 - n)$' or $2 \times n \times$ '$(n-1)$' is always even

Answers to Qn 17 (AO2): (No Calc) 25% of students got this right

16 a



M is the point such that $BM : MC$ is $1 : 2$

Here is Burt's method to find $\overrightarrow{BM}$ in terms of **a** and **b**.

$$\begin{aligned}\overrightarrow{BC} &= \overrightarrow{BA} + \overrightarrow{AC} \\ &= -\mathbf{b} + \mathbf{a} \\ &= \mathbf{a} - \mathbf{b} \\ \overrightarrow{BM} &= \frac{1}{2}\overrightarrow{BC} \\ &= \frac{1}{2}(\mathbf{a} - \mathbf{b})\end{aligned}$$

(a) Evaluate Burt's method.

He treated M as a midpoint.

1+2 = 3 so M is $\frac{1}{3}$ along BC

Instead he needed $\overrightarrow{BM} = \frac{1}{3}\overrightarrow{BC}$

(1)

Answers to Qn 18 (AO3): 25% of students got this right

Q	Answer	Mark	Comments
25(a)	39 295	B1	
	Additional Guidance		
25(b)	14 43	B1	
	Additional Guidance		
25(c)	x in History only (and $3x$ in English only) or expressions inside circles such that the number who take English is twice the number who take History	M1	
	x + their x + their $3x$ + 125 = 295	M1	oe equation Must have three expressions inside circles
	34	A1	
	Additional Guidance		
	$2x$ in History only and $5x$ in English only		M1

Answers to Qn 19 (AO2): (No Calc) 24% of students got this right

18.	(a) (b)		Circle, centre O, radius 3 $x = 2.6$, $y = -1.6$ or $x = -1.6$, $y = 2.6$	2 3	M1 for a complete circle centre (0, 0) A1 for a correct circle within guidelines M1 for $x + y = 1$ drawn M1 (dep) ft from (a) for attempt to find coordinates for any one point of intersection with a curve or circle A1 for $x = 2.6$, $y = -1.6$ **and** $x = -1.6$, $y = 2.6$, all ± 0.1

Answers to Qn 20 (AO1): (No Calc) 23% of students got this right

10 Find the value of $16^{-\frac{3}{4}}$

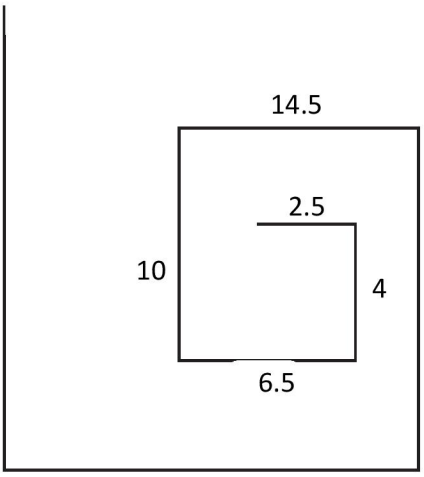
$$16^{-\frac{3}{4}} = \left(\frac{1}{16}\right)^{\frac{3}{4}} = \left(\frac{1}{\sqrt[4]{16}}\right)^{3} = \left(\frac{1}{2}\right)^{3} = \frac{1}{8}$$

..... $1/8$.....

(Total for Question 10 is 1 mark)

Answers to Qn 21 (AO1): (No Calc) 22% of students got this right

18 The diagram shows the first 8 sides of a spiral pattern.
It also gives the lengths, in m, of the first 5 sides.



The lengths, in m, of the sides of the spiral form a sequence.

Find an expression in terms of n for the length, in m, of the nth side.

	2.5	4	6.5	10
1st difference:	1.5	2.5	3.5	
2nd difference:		1	1	So includes $\frac{1}{2}n^2$

	2.5	4	6.5	10
$\frac{1}{2}n^2$:	0.5	2	4.5	8
Difference:	2	2	2	2

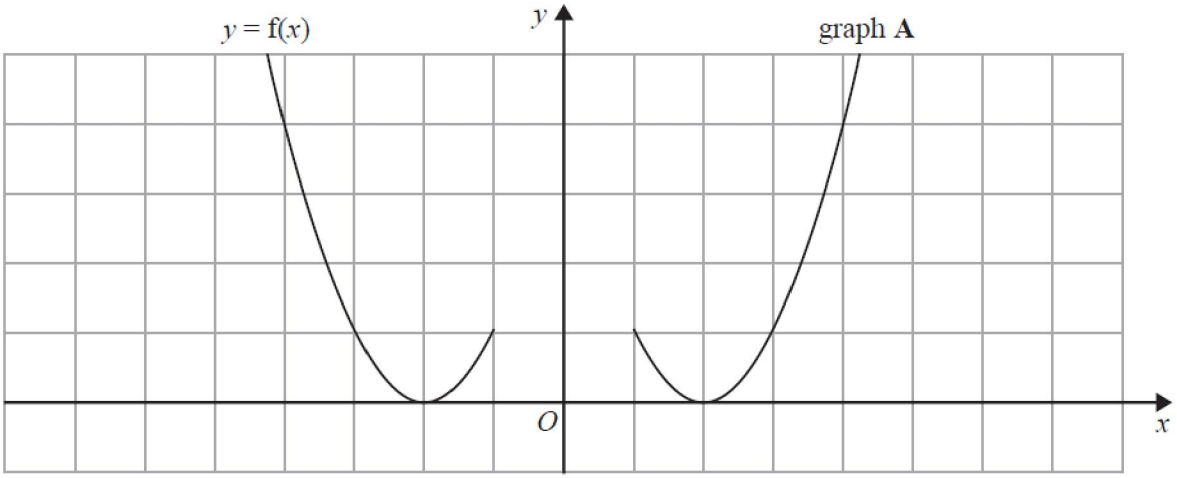
So nth term is $\frac{1}{2}n^2 + 2$

.....

(Total for Question 18 is 3 marks)

Answers to Qn 22 (AO3): (No Calc) 19% of students got this right

22 a The graph of $y = f(x)$ is shown on the grid.



Graph **A** is a reflection of the graph of $y = f(x)$.

(a) Write down the equation of graph **A**.

Reflection in y-axis: $y = f(-x)$

.....

(1)

Answers to Qn 23 (AO2): (No Calc) 19% of students got this right

20.	(i)		$(3, -1)$	3	B1 cao
	(ii)		$(1.5, -4)$		B1 for $(1.5, -4)$ accept 1.5 or $1\frac{1}{2}$ or $\frac{3}{2}$ for x coordinate
	(iii)		$(-3, -4)$		B1 cao

Answers to Qn 24 (AO1): (No Calc) 19% of students got this right

14 Write $0.2\dot{3}\dot{1}$ as a fraction in its simplest form.

$x = 0.2313131\ldots$

$100x = 23.1\mathbf{31313131}\ldots$

$-x = \ \ 0.2\mathbf{31313131}\ldots$

$99x = 22.9$

$990x - 229$

So $0.2\dot{3}\dot{1} = x = \frac{229}{990}$

..... $\frac{229}{990}$ .....

(Total for Question 14 is 3 marks)

Ext ANSWERS 1 (AO3): (No Calc) Only 14% of students got this rigl

Question	Working	Answer	Mark	Notes
17 (b)		$\frac{3+2x}{3-x}$	M1	for $(3 + 2x)(1 - 2x)$ oe
			M1	for $(2x - 1)(x - 3)$ oe
			A1	for cancelling correctly to leave $\frac{3+2x}{3-x}$ oe

Ext ANSWERS 2 (AO2): (No Calc) Only 14% of students got this rigl

20. Make b the subject of the formula:

$$a = \frac{5b+7}{2+b}$$

$a(2+b) = 5b+7$

$2a+ab = 5b+7$

$2a-7 = 5b-ab$

$2a-7 = b(5-a)$

$\rightarrow b = \frac{2a-7}{5-a}$

OR: $2a+ab = 5b+7$

$ab-5b = 7-2a$

$b(a-5) = 7-2a$

$b = \frac{7-2a}{a-5}$

Ext ANSWERS 3 (AO2): (No Calc) Only 14% of students got this rigl

Question 16 (Total 2 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	$(n-2)^2 = n^2 - 4n + 4$	C1	This mark is given for a correct expansion of $(n-2)^2$
	$n^2 - 2 - n^2 + 4n - 4$	C1	This mark is given for a correct expansion of $n - 2 - (n-2)^2$
	$2(2n - 3)$	C1	This mark is given for reducing the expression to $(2n - 3)$
	$2(2n-3)$ always even since it has a factor of 2 for all values of n	C1	This mark is given for a correct conclusion supported by working shown