ADA PINPOINT TOPIC PACKS

(1)Expand Single Brackets (0 Qns)
(2)Expanding and Factorising (1 Qns)
(3)Expand double brackets (2 Qns)
(4)Expanding triple brackets (6 Qns)
(5)Factorising Single Brackets (1 Qns)
(6)Expand and Factorise Quadratics (5 Qns)
(7)Factorise Quadratics (2 Qns)
(8)Factorising Quadratics with a coefficient greater than

30_to_100_Percent_Pinpoint_AI_Pack

Time Allocation = 34mins , Max = 30 Marks

Calculated Grade Boundaries:

Grade	Marks
3+	2
4-	4
4	5
4+	7
5-	8
5	10
5+	12
6-	13
6	15
6+	16

7-	18
7	19
7+	21
8-	23
8	24
8+	26
9-	27
9	29
9+	30

Question 1 (AO1): 69% of students got this right (1 marks)

12. Factorise $x^2 - 121$

.....

(Total for Question 12 is 1 mark)

Question 2 (AO1): 64% of students got this right (3 marks)

11 Expand and simplify $(x + 2)(x + 8)(x – 4)$

Question 3 (AO2): (No Calc) 62% of students got this right (3 marks)

6. (*a*) Expand $2m(m + 3)$

.....

(1)

(*b*) Factorise fully $3xy^2 - 6xy$

.....

(2)

(Total for Question 6 is 3 marks)

Question 4 (AO1): 62% of students got this right (3 marks)

5 (a) Expand and simplify $(x + 5)(x - 4)$

[2 marks]

Answer _____

5 (b) Solve $(x - 8)(x + 7) = 0$

[1 mark]

Answer _____

Question 5 (AO1): (No Calc) 61% of students got this right (3 marks)

16. (a) Simplify $(m^{-2})^5$

.....

(1)

(b) Factorise $x^2 + 3x - 10$

.....

(2)

(Total for Question 16 is 3 marks)

Question 6 (AO1): (No Calc) 60% of students got this right (5 marks)

11. (a) Expand and simplify $(x - 3)(x + 5)$

(b) Solve $x^2 + 8x - 9 = 0$

Question 7 (AO1): (No Calc) 58% of students got this right (2 marks)

11. Factorise fully $3xy^2 - 6x^3y$

.....

(Total 2 marks)

Question 8 (AO1): 57% of students got this right (3 marks)

15. (*a*) Expand and simplify $(2x + 1)(x - 3)(x + 5)$

.....

(3)

Question 9 (AO1): (No Calc) 47% of students got this right (3 marks)

10 Show that $(x + 1)(x + 2)(x + 3)$ can be written in the form $ax^3 + bx^2 + cx + d$ where a, b, c and d are positive integers.

(Total for Question 10 is 3 marks)

Question 10 (AO3): 34% of students got this right (1 marks)

21. (*a*) Factorise $4x^2 - 9$

.....

(1)

Question 11 (AO1): (No Calc) 31% 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 (AO3): (No Calc) 8% of students got this right (2 marks)

17. (a) Factorise $3(x - y)^2 - 2(x - y)$

.....

(2)

Answers to Qn 1 (AO1): 69% of students got this right

12		$(x + 11)(x - 11)$	B1	cao

Answers to Qn 2 (AO1): 64% of students got this right

Question		Working	Answer	Mark	Notes
11			$x^3 + 6x^2 - 24x - 64$	M1	for a method to find the product of any two linear expressions, e.g. 3 correct terms or 4 correct terms ignoring signs, e.g. $(x + 2)(x + 8) = x^2 + 10x + 16$, **or** $(x + 8)(x - 4) = x^2 + 4x - 32$, **or** $(x + 2)(x - 4) = x^2 - 2x - 8$
				M1	for a method of 6 products, 4 of which are correct (ft from their first product) **or** a method of 8 products 6 of which are correct
				A1	cao

Answers to Qn 3 (AO2): (No Calc) 62% of students got this right

6 (a) Expand $2m(m + 3)$

$2m^2 + 6m$

(1)

(b) Factorise fully $3xy^2 - 6xy$

$3xy(y - 2)$

(2)

Answers to Qn 4 (AO1): 62% of students got this right

5 (a) Expand and simplify $(x + 5)(x - 4)$

[2 marks]

Answer $x2 + x - 20$

5 (b) Solve $(x - 8)(x + 7) = 0$

[1 mark]

Answer 8 and –7

Answers to Qn 5 (AO1): (No Calc) 61% of students got this right

16 (a) Simplify $(m^{-2})^5$

$= m^{-2\times 5}$

$= m^{-10}$

m^{-10}

(1)

(b) Factorise $x^2 + 3x - 10$

$(x+5)(x-2)$

$(x+5)(x-2)$

(2)

Answers to Qn 6 (AO1): (No Calc) 60% of students got this right

Question		Working	Answer	Mark	Notes
11.	(a)	$x^2 - 3x + 5x - 15$	$x^2 + 2x - 15$	2	M1 for four correct terms with or without signs, or 3 out of no more than 4 terms with correct signs. The terms may be in an expression or in a table A1 cao
	(b)	$(x + 9)(x - 1) = 0$	$x = 1$ or $x = -9$	3	M2 for $(x + 9)(x - 1)$ (M1 for $(x \pm 9)(x \pm 1)$) A1 cao
		OR			OR
		a = 1, b = 8, c = − 9 $x = \frac{-8 \pm \sqrt{8^2 - 4 \times 1 \times -9}}{2 \times 1}$ $= \frac{-8 \pm \sqrt{100}}{2}$			M1 for correct substitution in formula of 1, 8, ±9 M1 for reduction to $\frac{-8 \pm \sqrt{100}}{2}$ A1 cao
		OR			OR
		$(x + 4)^2 - 16 - 9$ $(x + 4)^2 = 25$ $x = -4 \pm \sqrt{25}$			M1 for $(x + 4)^2$ M1 for $-4 \pm \sqrt{25}$ A1 cao SC: if no marks score then award B1 for 1 correct root, B3 for both correct roots.

Answers to Qn 7 (AO1): (No Calc) 58% of students got this right

Question		Working	Answer	Mark	Notes
11.			$3xy(y-2x^2)$	2	M1 for $3x\times\left(y^2-2x^2y\right)$ or $3y\times\left(xy-2x^3\right)$ or $xy\times\left(3y-6x^2\right)$ or $3xy\times$ (a 2 term expression in x and y, with just one error) A1 cao

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

15.	(*a*)		$2x^3 + 3x^2 - 28x - 15$	3	M1 Correct expansion of any 2 brackets (condone 1 error) M1 Correct expansion of previos product by remaining bracket (condone 1 error) A1

Answers to Qn 9 (AO1): (No Calc) 47% of students got this right

Question 10 (Total 3 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	$(x + 1)(x + 2) = x^2 + x + 2x + 2$ or $(x + 2)(x + 3) = x^2 + 2x + 3x + 6$ or $(x + 1)(x + 3) = x^2 + x + 3x + 3$	M1	This mark is given for a method to find the product of any two of three linear expressions
	$(x + 3)(x^2 + x + 2x + 2)$ or $(x + 1)(x^2 + 2x + 3x + 6)$ or $(x + 2)(x^2 + x + 3x + 3)$ $= x^3 + x^2 + 2x^2 + 3x^2 + 2x + 3x + 6x + 6$	M1	This mark is given for a for method to find the full expansion of three brackets
	$x^3 + 6x^2 + 11x + 6$ $(a = 1, b = 6, c = 11, d = 6)$	A1	This mark is given for the correct answer only

Answers to Qn 10 (AO3): 34% of students got this right

21 (a) Factorise $4x^2 - 9$

$(2x)^2 - (3)^2$

Difference of two squares $(2x+3)(2x-3)$

(1)

Answers to Qn 11 (AO1): (No Calc) 31% 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 (AO3): (No Calc) 8% of students got this right

17	(a)		$(x - y)(3x - 3y - 2)$	M1	identify $x - y$ as a common factor , e.g. $(x - y)(\ldots\ldots\ldots)$
				A1	oe