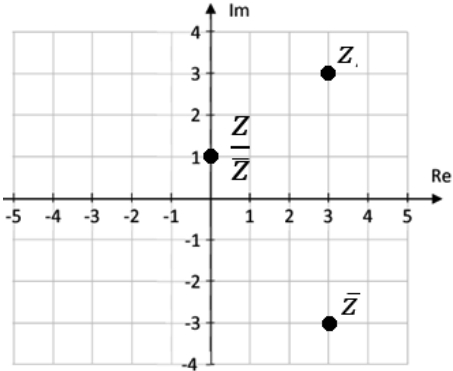


Q.1	Model Solution – 30 Marks	Marking Notes
(a)	<p>(i) $\text{Total} = 18\,000 \times \text{€}43$ $= \text{€}774\,000$</p>	<p>Scale 5B (0, 2, 5) <i>Partial Credit</i></p> <ul style="list-style-type: none"> Indicates to multiply the values but fails to complete
	<p>(ii) $\text{Profit} = \text{Money taken in} - \text{costs}$ $= \text{€}774\,000 - \text{€}360\,000$ $= \text{€}414\,000$</p> $\% \text{ profit} = \frac{\text{Profit}}{\text{Money taken in}} \times 100$ $\% \text{ profit} = \frac{414\,000}{774\,000} \times 100 = 53.488 \dots \%$ $= 53.5\%$	<p>Scale 10C (0, 3, 7, 10) Accept correct work here using incorrect answer found in (i) <i>Low Partial Credit</i></p> <ul style="list-style-type: none"> Profit found <p><i>High Partial Credit</i></p> <ul style="list-style-type: none"> Fully correct substitution into formula but fails to evaluate Substitutes costs instead of profit into formula, but evaluates correctly
(b)	<p>(i) Drummer gets one third of half of the profit. So, drummer gets one sixth of \$270 000 $= \\$45\,000$</p>	<p>Scale 10C (0, 3, 7, 10) <i>Low Partial Credit</i></p> <ul style="list-style-type: none"> Find half of \$270 000 <p><i>High Partial Credit</i></p> <ul style="list-style-type: none"> Determines that drummer's share is one sixth, but fails to evaluate
	<p>(ii) $\text{€}1 = \\$1.12$ $? = \\$30\,000$</p> $\frac{30\,000}{1.12} = \text{€}26\,785.71$ $= \text{€}26\,786$	<p>Scale 5B (0, 2, 5) <i>Partial Credit</i></p> <ul style="list-style-type: none"> Multiplies 30 000 by 1.12 <p><i>Full marks -1</i></p> <ul style="list-style-type: none"> Misreading and correctly converts \$45 000 to €40 179

Q.2	Model Solution – 30 Marks	Marking Notes
(a)	$4(3 + 2i) + i(5 - i)$ $12 + 8i + 5i - i^2$ $12 + 13i + 1$ $13 + 13i$	<p>Scale 10C (0, 3, 7, 10)</p> <p><i>Low Partial Credit</i></p> <ul style="list-style-type: none"> Any correct multiplication <p><i>High Partial Credit</i></p> <ul style="list-style-type: none"> Fully correct multiplication but fails to simplify correctly
(b)	(i) $\bar{z} = 3 - 3i$	<p>Scale 10D (0, 3, 5, 8, 10)</p> <p><i>Low Partial Credit</i></p> <ul style="list-style-type: none"> Find \bar{z} correctly
	(ii) $\frac{z}{\bar{z}} = \frac{3 + 3i}{3 - 3i} \times \frac{3 + 3i}{3 + 3i}$ $= \frac{9 + 9i + 9i + 9i^2}{9 + 9i - 9i - 9i^2}$ $= \frac{9 + 18i - 9}{9 + 9}$ $= \frac{0 + 18i}{18} = 0 + i$	<p><i>Mid Partial Credit</i></p> <ul style="list-style-type: none"> Indicates to multiply top and bottom by z <p><i>High Partial Credit</i></p> <ul style="list-style-type: none"> Correct multiplication but fails to simplify Incorrect \bar{z} found in (i) but correct method and continues to end correctly in (ii) <p><i>Full marks -1</i></p> <ul style="list-style-type: none"> Final answer left as just i
	(iii) 	<p>Scale 5C (0, 2, 3, 5)</p> <p>Accept correct points plotted using incorrect values found in (i) and (ii)</p> <p><i>Low Partial Credit</i></p> <ul style="list-style-type: none"> One point correct <p><i>High Partial Credit</i></p> <ul style="list-style-type: none"> Two points correct
	(iv) $ z = \sqrt{3^2 + 3^2}$ $= \sqrt{9 + 9}$ $= \sqrt{18}$ $= 3\sqrt{2}$	<p>Scale 5C (0, 2, 3, 5)</p> <p><i>Low Partial Credit</i></p> <ul style="list-style-type: none"> Any correct step <p><i>High Partial Credit</i></p> <ul style="list-style-type: none"> Fully correct substitution into modulus formula <p><i>Full marks -1</i></p> <ul style="list-style-type: none"> Answer not in simplest surd form

Q.3	Model Solution – 30 Marks	Marking Notes												
(a)	$-3 + 2d = 7$ $2d = 7 + 3$ $2d = 10$ $d = 5$ Missing values: -8 and 2	Scale 15C (0, 5, 10, 15) <i>Low Partial Credit</i> <ul style="list-style-type: none">Any correct step (e.g. sets up equation in d)One of the missing values found <i>High Partial Credit</i> <ul style="list-style-type: none">Common difference found but fails to find missing valuesMissing values found but difference not stated												
	(b)	<p>(i)</p> <table><tr><td>Term number</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td></tr><tr><td>Value</td><td>-2</td><td>-1</td><td>2</td><td>11</td><td>38</td></tr></table>	Term number	1	2	3	4	5	Value	-2	-1	2	11	38
Term number	1	2	3	4	5									
Value	-2	-1	2	11	38									
	<p>(ii) Neither</p> First nor second differences are constant	Scale 5B (0, 2, 5) <i>Partial Credit</i> <ul style="list-style-type: none">Correct answer with no reason or incorrect reason givenFinds some differences but no answer given or conclusion made												

Q.4	Model Solution – 30 Marks	Marking Notes
(a)	$16^{\frac{1}{2}} = \sqrt{16} = 4$ $3^{-5} = \frac{1}{3^5} = \frac{1}{243}$	<p>Scale 10B (0, 5, 10)</p> <p>Accept correct answers with no work shown</p> <p><i>Partial Credit</i></p> <ul style="list-style-type: none"> One answer correct
(b)	$3^{5x-2} = 27^{2x}$ $3^{5x-2} = (3^3)^{2x}$ $3^{5x-2} = 3^{6x}$ <p>Equate powers: $5x - 2 = 6x$ $-2 = 6x - 5x$ $-2 = x$</p> <p>Verify: $3^{5(-2)-2} = 27^{2(-2)}$ $3^{-12} = 27^{-4}$ $\frac{1}{531441} = \frac{1}{531441}$ ✓</p>	<p>Scale 10C (0, 3, 7, 10)</p> <p><i>Low Partial Credit</i></p> <ul style="list-style-type: none"> Changes 27 into 3^3 Equates powers at start and solves to get $x = \frac{2}{3}$ <p><i>High Partial Credit</i></p> <ul style="list-style-type: none"> Equates correct powers but fails to evaluate <p><i>Full marks -1</i></p> <ul style="list-style-type: none"> Correct value found for x but no verification shown
(c)	$3x^2 - 2x - 3 = 0 \quad a = 3, b = -2, c = -3$ $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$ $x = \frac{-(-2) \pm \sqrt{(-2)^2 - 4(3)(-3)}}{2(3)}$ $x = \frac{2 \pm \sqrt{4 + 36}}{6}$ $x = \frac{2 \pm \sqrt{40}}{6}$ $x = \frac{2 \pm 2\sqrt{10}}{6}$ $x = \frac{1 \pm \sqrt{10}}{3}$	<p>Scale 10C (0, 3, 7, 10)</p> <p><i>Low Partial Credit</i></p> <ul style="list-style-type: none"> Any correct substitution into formula <p><i>High Partial Credit</i></p> <ul style="list-style-type: none"> Fully correct substitution into formula <p><i>Full marks -1</i></p> <ul style="list-style-type: none"> Answers not in simplest surd form

Q.5	Model Solution – 30 Marks	Marking Notes
(a)	(i) $f(x) = x^2 - 5x$ $f(-2) = (-2)^2 - 5(-2)$ $f(-2) = 4 + 10$ $f(-2) = 14$	Scale 5C (0, 2, 3, 5) <i>Low Partial Credit</i> <ul style="list-style-type: none"> Any correct substitution <i>High Partial Credit</i> <ul style="list-style-type: none"> Fully correct substitution
	(ii) $f(x) = x^2 - 5x$ $f'(x) = 2x - 5$	Scale 5B (0, 2, 5) <i>Partial Credit</i> <ul style="list-style-type: none"> Any correct differentiation
	(iii) $f'(x) = 0$ $2x - 5 = 0$ $2x = 5$ $x = 2.5$	Scale 5B (0, 2, 5) Accept correct work here using incorrect answer from (ii) <i>Partial Credit</i> <ul style="list-style-type: none"> Forms equation but fails to solve
(b)	(i) $y = x^3 - 4x + 7$ $\frac{dy}{dx} = 3x^2 - 4$	Scale 10B (0, 5, 10) <i>Partial Credit</i> <ul style="list-style-type: none"> Any correct differentiation
	(ii) Slope at $(2, -3) = 3(2)^2 - 4$ Slope, $m = 3(4) - 4$ Slope, $m = 8$ Equation: $y - y_1 = m(x - x_1)$ $y - (-3) = 8(x - 2)$ $y + 3 = 8x - 16$ $0 = 8x - y - 19$	Scale 5C (0, 2, 3, 5) <i>Low Partial Credit</i> <ul style="list-style-type: none"> Slope found <i>High Partial Credit</i> <ul style="list-style-type: none"> Fully correct substitution but fails to simplify Incorrect slope found but otherwise correct to end

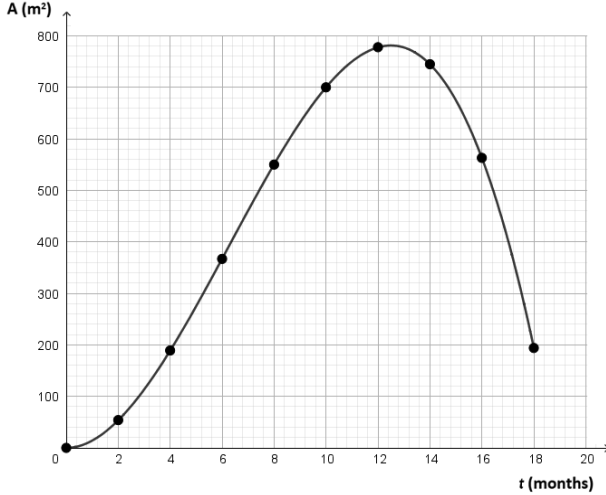
Q.6	Model Solution – 30 Marks	Marking Notes
(a)	(i) Quadratic	Scale 5A (0, 5) <ul style="list-style-type: none"> Hit or miss
	(ii) -2 and 4	Scale 5B (0, 2, 5) <i>Partial Credit</i> <ul style="list-style-type: none"> One root correct
	(iii) Graph: B Reason: Linear graph, which is below the x -axis to the left of $x = 1$ and above the x -axis to the right of $x = 1$.	Scale 5B (0, 2, 5) <i>Partial Credit</i> <ul style="list-style-type: none"> Correct answer with no reason or incorrect reason given Selects graph C and states that it must be a linear graph
(b)	Substitute $y = 3x - 2$ into $6x^2 + x - y^2 = 0$ $6x^2 + x - (3x - 2)^2 = 0$ $6x^2 + x - (9x^2 - 12x + 4) = 0$ $6x^2 + x - 9x^2 + 12x - 4 = 0$ $-3x^2 + 13x - 4 = 0$ $3x^2 - 13x + 4 = 0$ $(3x - 1)(x - 4) = 0$ $x = \frac{1}{3} \quad \text{or} \quad x = 4$ $y = 3\left(\frac{1}{3}\right) - 2 \qquad y = 3(4) - 2$ $y = 1 - 2 \qquad y = 12 - 2$ $y = -1 \qquad y = 10$ Points: $\left(\frac{1}{3}, -1\right)$ $(4, 10)$	Scale 15D (0, 4, 8, 12, 15) <i>Low Partial Credit</i> <ul style="list-style-type: none"> Correct substitution into quadratic equation <i>Mid Partial Credit</i> <ul style="list-style-type: none"> Correct trinomial formed <i>High Partial Credit</i> <ul style="list-style-type: none"> Values for x found but fails to find correct values for y

Q.7	Model Solution – 50 Marks	Marking Notes
(a)	<p>Option A</p> <p>Option A = €10 × 7 = €70</p> <p>Option B = €1 + €2 + €3 + €4 + €5 + €6 + €7 = €28</p>	<p>Scale 10C (0, 3, 7, 10)</p> <p><i>Low Partial Credit</i></p> <ul style="list-style-type: none"> Correct answer with no work shown <p><i>High Partial Credit</i></p> <ul style="list-style-type: none"> Correct answer with some correct work shown Workings shown correctly but no conclusion made
(b)	Total = 10n	<p>Scale 5A (0, 5)</p> <ul style="list-style-type: none"> Hit or miss
(c)	(i) $a = 1, d = 1$	<p>Scale 5B (0, 2, 5)</p> <p><i>Partial Credit</i></p> <ul style="list-style-type: none"> One value correct
	<p>(ii) Total = $\frac{30^2 + 30}{2}$</p> <p>$= \frac{930}{2}$</p> <p>$= €465$</p>	<p>Scale 5B (0, 2, 5)</p> <p><i>Partial Credit</i></p> <ul style="list-style-type: none"> Any correct substitution
	<p>(iii) Total by option A = Total by option B</p> $10n = \frac{n^2 + n}{2}$ $20n = n^2 + n$ $0 = n^2 - 19n$ $0 = n(n - 19)$ <p>$n = 0$ or $n = 19$ (reject)</p>	<p>Scale 10C (0, 3, 7, 10)</p> <p><i>Low Partial Credit</i></p> <ul style="list-style-type: none"> Equation correctly formed <p><i>High Partial Credit</i></p> <ul style="list-style-type: none"> Finds $n^2 - 19n = 0$ but fails to solve correctly


(d)	<p>(i) Gross tax = 20% of €36000 + 40% of €7000 = €7 200 + €2 800 = €10 000</p> <p>Net tax = Gross tax – Tax credit = €10 000 – €2 600 = €7 400</p> <p>Net income = €43 000 – €7 400 = €35 600</p>	<p>Scale 10D (0, 3, 5, 8, 10)</p> <p><i>Low Partial Credit</i></p> <ul style="list-style-type: none"> • One percentage found correctly <p><i>Mid Partial Credit</i></p> <ul style="list-style-type: none"> • Gross tax found • Incorrect gross tax found but continues to end correctly <p><i>High Partial Credit</i></p> <ul style="list-style-type: none"> • Net tax found • Tax credit added but otherwise fully correct
	<p>(ii) The bonus will be taxed at the higher rate.</p> <p>€3840 = Amount of bonus after tax</p> <p>€3840 = 60% of bonus</p> <p>€64 = 1% of bonus</p> <p>€6400 = 100% of bonus</p>	<p>Scale 5C (0, 2, 3, 5)</p> <p><i>Low Partial Credit</i></p> <ul style="list-style-type: none"> • Work of merit (e.g. lets €3840 = 60%) <p><i>High Partial Credit</i></p> <ul style="list-style-type: none"> • Finds 1% or similar

Q.8	Model Solution – 50 Marks	Marking Notes
(a)	<p>(i) Cycling distance = $0.5 \times 25 = 12.5$ km</p> <p>Running time = $\frac{8}{10} = 0.8$ hours = 48 mins</p>	<p>Scale 10D (0, 3, 5, 8, 10)</p> <p><i>Low Partial Credit</i></p> <ul style="list-style-type: none"> • Work of merit in finding one part <p><i>Mid Partial Credit</i></p> <ul style="list-style-type: none"> • One part correct <p><i>High Partial Credit</i></p> <ul style="list-style-type: none"> • One part correct and work of merit in finding the other part <p><i>Full marks -1</i></p> <ul style="list-style-type: none"> • Answer left in hours
	<p>(ii) Total time = $50 + 30 + 48 = 128$ mins = $2\frac{2}{15}$ h</p> <p>Total distance = $1.5 + 12.5 + 8 = 22$ km</p> <p>Speed = $\frac{22}{2\frac{2}{15}} = 10.3125$</p> <p style="text-align: center;">$= 10.3$ km/h</p>	<p>Scale 5C (0, 2, 3, 5)</p> <p>Accept correct work here using incorrect values found in (i)</p> <p><i>Low Partial Credit</i></p> <ul style="list-style-type: none"> • Finds total time or total distance <p><i>High Partial Credit</i></p> <ul style="list-style-type: none"> • Finds total time and total distance but fails to find speed
(b)	<p>(i) Find x when $h = 0$</p> <p>$0 = 0.525x - 0.0025x^2$</p> <p>$0 = x(0.525 - 0.0025x)$</p> <p>$x = 0$ or $0.525 - 0.0025x = 0$</p> <p style="text-align: center;">$0.525 = 0.0025x$</p> <p style="text-align: center;">$210 = x$</p> <p>Ball travels a horizontal distance 210 m</p>	<p>Scale 10C (0, 3, 7, 10)</p> <p><i>Low Partial Credit</i></p> <ul style="list-style-type: none"> • Correct equation formed <p><i>High Partial Credit</i></p> <ul style="list-style-type: none"> • Factorises correctly but fails to solve

	<p>(ii) $h(x) = 0 \cdot 525 x - 0 \cdot 0025 x^2$ $h'(x) = 0 \cdot 525 - 0 \cdot 005 x$ $0 = 0 \cdot 525 - 0 \cdot 005 x$ $0 \cdot 005 x = 0 \cdot 525$ $x = 105 \text{ m}$</p> <p>Find height when $x = 105 \text{ m}$ $h(105) = 0 \cdot 525 x - 0 \cdot 0025 x^2$ $= 0 \cdot 525(105) - 0 \cdot 0025(105)^2$ $= 55 \cdot 125 - 27 \cdot 5625$ $= 27 \cdot 5625 \text{ m}$</p>	<p>Scale 10D (0, 3, 5, 8, 10)</p> <p><i>Low Partial Credit</i></p> <ul style="list-style-type: none"> Any correct differentiation <p><i>Mid Partial Credit</i></p> <ul style="list-style-type: none"> Fully correct differentiation <p><i>High Partial Credit</i></p> <ul style="list-style-type: none"> Value for x found but fails to find the height
(c)	<p>$g(x) = p x - 0 \cdot 002 x^2$ contains (225, 0) $0 = p(225) - 0 \cdot 002(225)^2$ $0 = 225p - 101 \cdot 25$ $101 \cdot 25 = 225p$ $0 \cdot 45 = p$</p>	<p>Scale 5C (0, 2, 3, 5)</p> <p><i>Low Partial Credit</i></p> <ul style="list-style-type: none"> Any correct substitution <p><i>High Partial Credit</i></p> <ul style="list-style-type: none"> Fully correct substitution but fails to solve
(d)	<p>(i) Offer 3</p> <p>Offer 1: Three lessons for €160, so €53.33 each Offer 2: Two lessons for €70 + €35 = €105 so €52.50 each Offer 3: Five lessons for €240, so €48 each</p>	<p>Scale 5C (0, 2, 3, 5)</p> <p><i>Low Partial Credit</i></p> <ul style="list-style-type: none"> Correct answer with no justification shown Some costs per lesson found <p><i>High Partial Credit</i></p> <ul style="list-style-type: none"> Justification shown but no answer selected
	<p>(ii) Larry may not want to take 5 lessons. He may only want to do 1 or 2.</p>	<p>Scale 5A (0, 5)</p> <ul style="list-style-type: none"> Hit or miss Accept any valid answer

Q.9		Model Solution – 50 Marks						Marking Notes					
(a)	(i)	t (months)	0	2	4	6	8	10	12	14	16	18	
		A (m ²)	0	54	189	367	550	700	778	745	563	194	
	<p>Scale 10D (0, 3, 5, 8, 10)</p> <p>Consider solution as being 9 entries</p> <p><i>Low Partial Credit</i></p> <ul style="list-style-type: none">Any correct entry <p><i>Mid Partial Credit</i></p> <ul style="list-style-type: none">Four correct entries <p><i>High Partial Credit</i></p> <ul style="list-style-type: none">Seven correct entries												
(ii)							<p>Scale 10D (0, 3, 5, 8, 10)</p> <p>Accept correct plotting of incorrect points found in (i)</p> <p><i>Low Partial Credit</i></p> <ul style="list-style-type: none">Any correct point <p><i>Mid Partial Credit</i></p> <ul style="list-style-type: none">Four correct points <p><i>High Partial Credit</i></p> <ul style="list-style-type: none">One point incorrectly plottedPoints joined with straight lines						
	<p>(b) (i) $A = 15t^2 - 0.8t^3$</p> $\frac{dA}{dt} = 30t - 2.4t^2$						<p>Scale 5B (0, 3, 5)</p> <p><i>Partial Credit</i></p> <ul style="list-style-type: none">Any correct differentiation						
(ii)	<p>$t = 2:$</p> $\begin{aligned}\frac{dA}{dt} &= 30(2) - 2.4(2)^2 \\ &= 60 - 9.6 \\ &= 50.4\end{aligned}$ <p>Conclusion: At this time, the area of the algae is increasing at a rate of 50.4 m² per month.</p>						<p>Scale 5C (0, 2, 3, 5)</p> <p>Accept correct work here using incorrect answer in part (i)</p> <p><i>Low Partial Credit</i></p> <ul style="list-style-type: none">Correct substitution <p><i>High Partial Credit</i></p> <ul style="list-style-type: none">Correct value found but incorrect conclusion or no conclusion given						

	<p>(iii) At maximum $\frac{dA}{dt} = 0$</p> $0 = 30t - 2 \cdot 4 t^2$ $0 = t (30 - 2 \cdot 4 t)$ $0 = t \quad \text{or} \quad 0 = 30 - 2 \cdot 4 t$ $2 \cdot 4 t = 30$ $t = 12 \cdot 5$	<p>Scale 5C (0, 2, 3, 5)</p> <p>Accept correct work here using incorrect answer in part (i)</p> <p><i>Low Partial Credit</i></p> <ul style="list-style-type: none"> Correct equation formed <p><i>High Partial Credit</i></p> <ul style="list-style-type: none"> Factorised correctly but fails to solve
(c)	<p>(i) $A = 367 - 3 \cdot 2 t^2$</p> $\frac{dA}{dt} = -6 \cdot 4 t$ <p>For all positive values of t, $\frac{dA}{dt} < 0$</p> <p>Therefore, the area of the algae is decreasing.</p>	<p>Scale 10D (0, 3, 5, 8, 10)</p> <p><i>Low Partial Credit</i></p> <ul style="list-style-type: none"> Any correct differentiation <p><i>Mid Partial Credit</i></p> <ul style="list-style-type: none"> Four correct points <p><i>High Partial Credit</i></p> <ul style="list-style-type: none"> Finds $\frac{dA}{dt}$ correctly but no conclusion or incorrect conclusion given
	<p>(ii) Let $A = 0$</p> $0 = 367 - 3 \cdot 2 t^2$ $3 \cdot 2 t^2 = 367$ $t^2 = 114 \cdot 6875$ $t = 10 \cdot 7$ $t = 11 \text{ months}$	<p>Scale 5C (0, 2, 3, 5)</p> <p><i>Low Partial Credit</i></p> <ul style="list-style-type: none"> Correct equation formed <p><i>High Partial Credit</i></p> <ul style="list-style-type: none"> Some correct transposing, but fails to solve <p><i>Full marks -1</i></p> <ul style="list-style-type: none"> Answer not rounded Units incorrect or omitted

Q.10	Model Solution – 50 Marks	Marking Notes
(a)	(i) 	Scale 5A (0, 5) • Hit or miss
	(ii) Missing values: 7, 10, 13, 16	Scale 5C (0, 2, 3, 5) <i>Low Partial Credit</i> • One value correct <i>High Partial Credit</i> • Three values correct
	(iii) $T_n = a + (n - 1)d$ $a = 4, \quad d = 3$ $T_n = 4 + (n - 1)(3)$ $T_n = 4 + 3n - 3$ $T_n = 1 + 3n$	Scale 5C (0, 2, 3, 5) <i>Low Partial Credit</i> • Identifies value for a or d . <i>High Partial Credit</i> • Fully correct substitution into formula <i>Full marks -1</i> • Units omitted or incorrect
	(iv) $67 = 1 + 3k$ $66 = 3k$ $22 = k$	Scale 5B (0, 2, 5) Accept correct work using incorrect formula found in (iii) <i>Partial Credit</i> • Fully correct substitution into formula <i>Full marks -1</i> • Units omitted or incorrect
(b)	(i) $S_n = \frac{n}{2}[2a + (n - 1)d]$ $a = 4, d = 3, n = 10$ $S_{10} = \frac{10}{2}[2(4) + (10 - 1)(3)]$ $= 5[8 + (9)(3)]$ $= 5[35]$ $= 175$	Scale 10C (0, 3, 7, 10) Accept 10 terms listed and summed for full marks <i>Low Partial Credit</i> • S_n formula written • S_n formula with some substitution • a and/or d identified <i>High Partial Credit</i> • Fully correct substitution into formula • 10 terms listed with addition indicated

	<p>(ii) $S_n = \frac{n}{2}[2a + (n-1)d] \quad a = 4, d = 3$</p> $1750 = \frac{n}{2}[2(4) + (n-1)(3)]$ $1750 = \frac{n}{2}[8 + 3n - 3]$ $1750 = \frac{n}{2}[3n + 5]$ $3500 = n[3n + 5]$ $3500 = 3n^2 + 5n$ $0 = 3n^2 + 5n - 3500$ <p>Solving using quadratic formula gives:</p> $n = -35 \text{ or } n = \frac{100}{3} = 33.333$ <p>Therefore, greatest number of rows Maya can make is 33.</p>	<p>Scale 5C (0, 2, 3, 5)</p> <p><i>Low Partial Credit</i></p> <ul style="list-style-type: none"> S_n formula with some substitution a and/or d identified <p><i>High Partial Credit</i></p> <ul style="list-style-type: none"> Correct quadratic equation formed <p><i>Full credit -1</i></p> <ul style="list-style-type: none"> Two values for n found but correct answer not stated
(c)	<p>(i) $T_n = \frac{3}{2}n^2 + bn + c$</p> $T_1 = \frac{3}{2}(1)^2 + b(1) + c$ $T_1 = \frac{3}{2} + b + c$ $T_2 = \frac{3}{2}(2)^2 + b(2) + c$ $T_2 = 6 + 2b + c$	<p>Scale 5C (0, 2, 3, 5)</p> <p><i>Low Partial Credit</i></p> <ul style="list-style-type: none"> Any relevant substitution into formula <p><i>High Partial Credit</i></p> <ul style="list-style-type: none"> One full substitution

	<p>(ii) $T_1 = \frac{3}{2} + b + c$</p> $3 = \frac{3}{2} + b + c$ $6 = 3 + 2b + 2c$ $3 = 2b + 2c$ $T_2 = 6 + 2b + c$ $9 = 6 + 2b + c$ $3 = 2b + c$ <p>Solve:</p> $3 = 2b + 2c$ $\underline{3 = 2b + c} \quad (\text{subtract})$ $0 = c$ $3 = 2b + 0$ $\frac{3}{2} = b$	<p>Scale 10C (0, 3, 7, 10)</p> <p><i>Low Partial Credit</i></p> <ul style="list-style-type: none"> One or both equations from (i) transferred <p><i>High Partial Credit</i></p> <ul style="list-style-type: none"> One variable found
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