1	**Alternative method 1**		
	$n-1$ and n and $n+1$	M1	oe eg $(n-1)n(n+1)$ or $n(n-1)(n+1)$
	$n(n^2+n-n-1)$ with M1 seen or $n(n^2-1)$ with M1 seen or $(n^2-n)(n+1)$ with M1 seen or $(n^2+n)(n-1)$ with M1 seen	M1dep	
	$n^3-n^2+n^2-n+n$ with M2 seen or n^3-n+n with M2 seen	M1dep	
	n^3 with M3 seen	A1	
	Alternative method 2		
	x and $x+1$ and $x+2$	M1	oe eg $x(x+1)(x+2)$ or $(x+1)x(x+2)$
	$(x^2+x)(x+2)$ with M1 seen or $(x^2+2x)(x+1)$ with M1 seen or $x(x^2+2x+x+2)$ with M1 seen or $x(x^2+3x+2)$ with M1 seen	M1dep	
	$x^3+3x^2+2x+x+1$ with M2 seen or $x^3+x^2+2x^2+2x+x+1$ with M2 seen	M1dep	
	x^3+3x^2+3x+1 and $(x+1)^3$ with M3 seen	A1	allow x^3+3x^2+3x+1 and n^3 with M3 seen if $n=x+1$ stated
	Additional Guidance		
	Only numerical example(s)		Zero
	Condone use of any letter eg N		

Q	Answer	Mark	Comments
2	$9x^2 + 3x + 3x + 1$ or $9x^2 + 6x + 1$ or $-(8x^2 - 6x)$ or $-8x^2 + 6x$	M1	
	$35 + 9x^2 + 3x + 3x + 1 - 8x^2 + 6x$ or $35 + 9x^2 + 6x + 1 - 8x^2 + 6x$	M1dep	
	$x^2 + 12x + 36$	A1	
	$(x + 6)^2$	A1	allow $(x + 6)(x + 6)$
	Additional Guidance		
	Condone inclusion of $= 0$ in all working		
	Ignore any solution attempt for $(x + 6)^2 = 0$		
	Ignore substitution of values		

Q	Answer	Mark	Comments
3	(Total time =) $\frac{30}{a} + \frac{30}{b}$	M1	oe eg $\frac{30b}{ab} + \frac{30a}{ab}$ or $\frac{30(b+a)}{ab}$
	correct expression for total distance ÷ total time	M1dep	eg $(30 + 30) \div \left(\frac{30}{a} + \frac{30}{b}\right)$ or $60 \div \frac{30(b+a)}{ab}$ or $60 \times \frac{ab}{30(b+a)}$
	$60 \times \frac{ab}{30(a+b)} = \frac{2ab}{a+b}$	A1	condone $b + a$ for $a + b$ condone $30a + 30b$ for $30(a + b)$
	Additional Guidance		
	Students can gain M1M1 if they incorrectly simplify a correct expression for total time before forming the division eg $\frac{30}{a} + \frac{30}{b} = \frac{60}{a+b}$ followed by $60 \div \frac{60}{a+b}$		M1M1A0
	Allow correct cancellation of 60 and 30 at any stage of the working		

Q	Answer	Mark	Comments
4	$80 \times x$ or $80x$ or $x \times 80$ or $x80$ or $x \div 60$ or $\frac{x}{60}$ or $\frac{1}{60}x$ or $x\frac{1}{60}$ or $80 \div 60$ or $\frac{80}{60}$	M1	teabags per hour boxes per minute
	$\frac{80x}{60}\left(=\frac{4x}{3}\right)$ or $80 \div 60 \times x\left(=\frac{4x}{3}\right)$	A1	oe showing 80 and 60 and x eg $\frac{80 \times x}{60}\left(=\frac{4x}{3}\right)$ or $x\frac{80}{60}\left(=\frac{4x}{3}\right)$ or $\frac{80}{60} \times x\left(=\frac{4x}{3}\right)$ or $80x \div 60\left(=\frac{4x}{3}\right)$

Additional Guidance

M1 may be awarded for correct work with no answer or incorrect answer, even if this is seen amongst multiple attempts	
Do not allow M1 if only seen embedded in an incorrect expression or calculation eg $80x \times 4 = 320x$	M0
$60 \times \frac{4x}{3} = 80x$ (M1 allowed as $80x$ is not embedded in an incorrect expression or calculation, A0 because using the given answer)	M1A0
Condone $x = 80 \div 60$	M1A0
$\frac{80x}{60}\left(=\frac{4x}{3}\right)$	M1A1
$\frac{80}{60} = \frac{4}{3}$ and $\frac{4}{3} \times x\left(=\frac{4x}{3}\right)$	M1A1
$\frac{80}{60} = \frac{4}{3}$ and $\frac{4x}{3}$	M1A0
No equivalents allowed for M1	
Ignore units	
Condone 1.33(...) for $\frac{4}{3}$	
Ignore non-contradictory working after M1A1 seen	

Q	Answer	Mark	Comments
5	Creates an algebraic product in the form $(x + a)(x + b)$ where there is a difference of 6 between a and b	M1	accept any letter for x eg $x(x + 6)$ or $x^2 + 6x$ or $x(x - 6)$ or $x^2 - 6x$
	Correctly expands their product, adds 9 and simplifies to a quadratic expression	M1dep	eg $x^2 + 6x + 9$ or $x^2 - 6x + 9$
	Correctly factorises their quadratic expression to the form $(x + c)^2$ with M2 awarded	A1	eg $(x + 3)^2$ or $(x - 3)^2$
	Additional Guidance		
	Trialling integers scores no marks, but ignore any testing of values alongside correct algebra		
	Ignore any further work or attempts to solve after correct answer seen		
	Missing brackets may be recovered eg $x \times x + 6$ followed by $x^2 + 6x + 9$		M1M1
	$(x + 3)(x + 3)$ without $(x + 3)^2$ seen does not score the A mark		
	$(x - 2)(x - 8)$ $x^2 - 2x - 8x + 16 + 9 = x^2 - 10x + 25$ $(x - 5)^2$		M1 M1 A1