Question Number	Scheme	Marks
1(a)	$h = 1.25$	B1
	$A \approx \frac{1}{2} \times 1.25\left\{3.479 + 5.182 + 2\left(6.101 + 7.448 + 6.823\right)\right\}$	M1
	= 30.9	A1
		(3)
(b)	$\int_{0.5}^{5.5} \left(\mathrm{f}\left(x\right) + 4x\right) \mathrm{d}x = 30.9 + \left[2x^2\right]_{0.5}^{5.5} = 30.9 + 2 \times 5.5^2 - 2 \times 0.5^2$ **or** $\int_{0.5}^{5.5} \left(\mathrm{f}\left(x\right) + 4x\right) \mathrm{d}x = \int_{0.5}^{5.5} \mathrm{f}\left(x\right) \mathrm{d}x + \frac{1}{2}\left(4 \times 0.5 + 4 \times 5.5\right) \times 5 = \ldots$	M1
	= 30.9 + 60 = 90.9	A1ft
		(2)
		Total 5

(a)

B1: Correct strip width of 1.25. Allow equivalent numerical expressions e.g. $\frac{5.5-0.5}{4}$.

May be implied by sight of e.g. $\frac{1.25}{2}$ or $\frac{5}{8}$ or 0.625 in front of the bracket. May also be implied by a correct answer if no incorrect working seen. $h = -1.25$ is B0 unless they recover and subsequently use $h = +1.25$

M1: Correct application of the trapezium rule with their h (which may be 1).

This requires a correct inner bracket structure $3.479 + 5.182 + 2\left(6.101 + 7.448 + 6.823\right)$ multiplied by $\frac{1}{2}h$. Condone slips copying values from the table or the omission of the final bracket on the rhs e.g. $\frac{1}{2} \times "1.25"(3.479 + 5.182 + 2(6.101 + 7.448 + 6.823)$ is M1

but $\frac{1}{2} \times "1.25" \times 3.479 + 5.182 + 2\left(6.101 + 7.448 + 6.823\right)$ is M0 unless the missing brackets are recovered or implied by the correct answer (you may need to check).

Also allow for a correct method adding individual trapezia using their h condoning copying errors but the brackets must be correct (or recovered or implied by later work)

e.g. $\frac{1}{2} \times "1.25"(3.479 + 6.101) + \frac{1}{2} \times "1.25"(6.101 + 7.448) + \frac{1}{2} \times "1.25"(7.448 + 6.823) + \frac{1}{2} \times "1.25"(6.823 + 5.182)$

A1: For awrt 30.9. isw once a correct answer is seen. Correct answer with no working scores B1M1A1 but if there is evidence of using $h = -1.25$ then maximum awarded is B0M1A0. The A mark cannot be awarded without both B1M1 being awarded in this question. The exact answer is $\frac{9881}{320}$ and scores A0 unless followed by awrt 30.9

For reference, note that use of h = 1 (from using 5 strips) gives 24.7… or $\frac{9881}{400}$

(a) $\int_{0.5}^{5.5} 1.25\,(3.479 + 6.101 + 7.448 + 6.823 + 5.182) = 36.3$ Scores B1M0A0 (BOD)