Question Number	Scheme	Marks
3.	$\int \frac{(x+3)^2}{3\sqrt{x}}\,dx$ $\frac{(x+3)^2}{3\sqrt{x}} = \frac{x^2+6x+9}{3\sqrt{x}} = \frac{1}{3}x^{\frac{3}{2}} + 2x^{\frac{1}{2}} + 3x^{-\frac{1}{2}}$ $\int \frac{(x+3)^2}{3\sqrt{x}}\,dx = \frac{1}{3}\times\frac{2}{5}x^{\frac{5}{2}} + 2\times\frac{2}{3}x^{\frac{3}{2}} + 3\times\frac{2}{1}x^{\frac{1}{2}} + c$ $= \frac{2}{15}x^{\frac{5}{2}} + \frac{4}{3}x^{\frac{3}{2}} + 6x^{\frac{1}{2}} + c$	M1 dM1 A1, A1, A1 **(5)** **(5 marks)**

M1: For an attempt to multiply out the numerator and divide at least two terms by the denominator with at least one power correct. Allow if there are only two terms from squaring.

dM1: For correctly achieving two correct powers following integration (need not be simplified).

A1: Previous dM must have been gained (so two correct powers after integrating), at least **one** correct algebraic term, allow unsimplified. E,g, allow $\frac{\frac{1}{3}}{\frac{5}{2}}x^{\frac{5}{2}}$ Allow $\frac{1}{3}(...)$ with one correct term inside the bracket.

A1: Two correct **simplified** algebraic terms. May have the $\frac{1}{3}$ factored out.

A1: Fully correct and simplified including the + *c*, accepting equivalent simplified forms. Ignore spurious extra integral signs or d*x*'s if they have the correct expression. May have the $\frac{1}{3}$ factored out. ISW if they multiply through their answer by a constant after the integration.

Note: If you see attempts at parts or substitution that look worthy of merit then send to review.

Question Number	Scheme	Marks
4. (a)	$(270°, 0)$	B1 **(1)**
(b)	$(-180°, -4)$	B1, B1 **(2)**
(c)(i)	100	B1
(ii)	4	B1
(iii)	7	B1 **(3)** **(6 marks)**

Note: Watch for answers next to the question itself rather than in line. If different answers are given next to a question and in the answer space then score the response in the answer space.

(a)

B1: $(270°, 0)$ but allow $x = 270$, $y = 0$ (degrees symbol may be missing) Just 270 without reference to coordinates is B0. Condone missing brackets, but the order must be correct.

(b)

B1: Either $(-180°, y)$ or $(x, -4)$ and allow if coordinates are the wrong way round for this mark, but they must be giving a coordinate pair. E.g. just -4 on its own is B0, but $(-4, p)$ or $(q, -180°)$ can score B1.

SC: Allow $(-\pi, y)$ (if y is incorrect – they will score B1 regardless of if y is correct).

B1: $(-180°, -4)$ but allow $x = -180$, $y = -4$

(degrees symbol may be missing). Condone missing brackets, but the order must be correct.

(c)

B1: 100

B1: 4

B1: 7

Note : if there is no labelling for (i),(ii) and (iii) then score in the order listed.