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.

Question Number	Scheme	Marks
5. (a)	$x-2y+25=0$ $y=\frac{1}{2}x+\frac{25}{2}\Rightarrow y=-2x+...$ $y=-2x$	M1 A1 **(2)**
(b)	Substitutes $y=-2x$ into $x-2y+25=0\Rightarrow x+4x+25=0$ $\Rightarrow x=-5,\ y=10$	M1 A1, A1 **(3)**
(c)	Shortest distance = $\sqrt{5^2+10^2}=5\sqrt{5}$	M1, A1cso **(2)** **(7 marks)**

(a)

M1: Attempts the normal gradient. E.g. writes $x-2y+25=0$ in the form $y=px+q$ AND changes the gradient (need not be correctly changed). Alternatively, may switch the x and y coordinates and change a sign – e.g. perpendicular line is $2x+y+k=0$. Another approach is to find the gradient of l_1 by identifying two points on the line and attempting the gradient (must be change in y over change in x) between these two points.
May be implied by the correct answer.

A1: $y=-2x$ o.e. Score for the correct answer even if an incorrect "q" was seen.

(b)

M1: Attempts to solve their $y=-2x$ (must be of form kx) with $x-2y+25=0$ (or their rearrangement of this).
Score for setting up an equation in a single variable.

A1: $x=-5$ OR $y=10$ from correct work.

A1: Both $x=-5,\ y=10$ from correct work

(c)

M1: Attempts to use Pythagoras theorem to find the distance or distance squared between (0, 0) and their $(-5,10)$ or other full method to find the shortest distance.

A1cso: $5\sqrt{5}$ Must be simplified surd form. Must have come from correct coordinates in (b).