5 Solutions to this question by accurate drawing will not be accepted.

The points A and B are (4, 3) and (12, −7) respectively.

(a) Find the equation of the line L, the perpendicular bisector of the line AB. [4]

(b) The line parallel to AB which passes through the point (5, 12) intersects L at the point C. Find the coordinates of C. [4]

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6 **(a)** Find the equation of the tangent to the curve $2y = \tan 2x + 7$ at the point where $x = \frac{\pi}{8}$.

Give your answer in the form $ax - y = \frac{\pi}{b} + c$, where a, b and c are integers. [5]

(b) This tangent intersects the x-axis at P and the y-axis at Q. Find the length of PQ. [2]

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