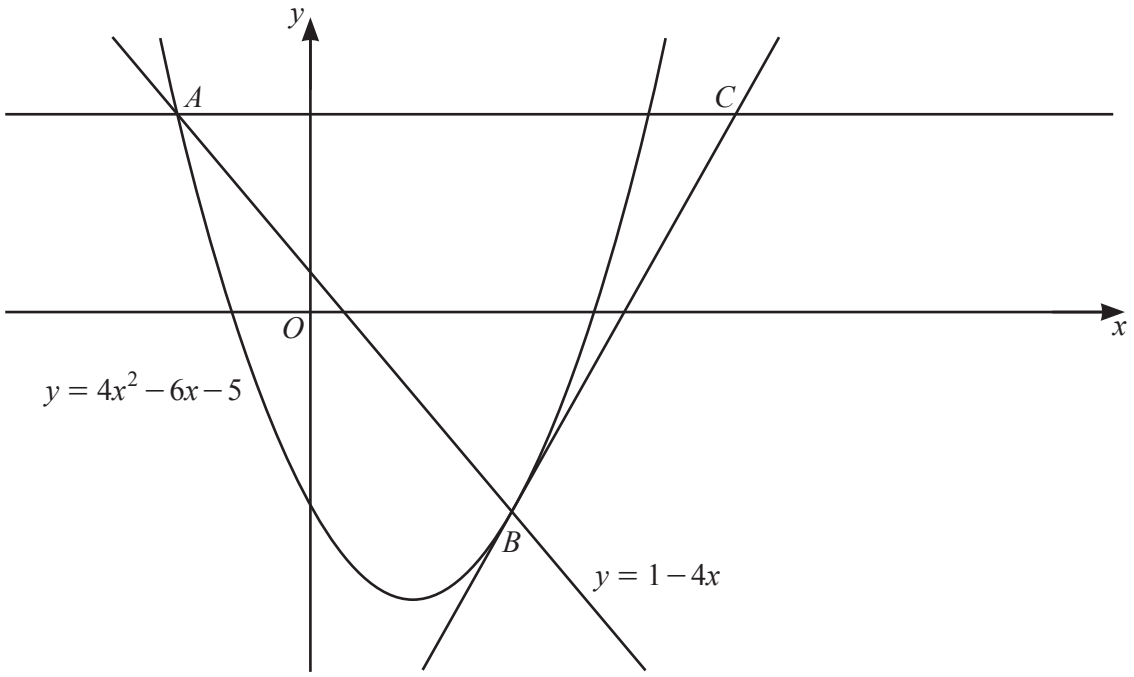
8



The diagram shows the line $y = 1 - 4x$ meeting the curve $y = 4x^2 - 6x - 5$ at the points A and B. The tangent to the curve at B meets the horizontal line through A at the point C. Find the x-coordinate of C, giving your answer correct to 2 decimal places. [10]

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Additional working space for Question 8.

9 **(a)** The first three terms of an arithmetic progression are $-3\tan\frac{\theta}{2}$, $-\tan\frac{\theta}{2}$, $\tan\frac{\theta}{2}$, where $0 < \theta < \frac{\pi}{2}$.

(i) Given that the 12th term of this progression is equal to $\frac{19\sqrt{3}}{3}$, find the exact value of θ. [4]

(ii) Hence find the exact value of the sum to ten terms of this progression. [2]

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