Question 11 **(9 marks)**

A pizza shop estimates that the time X hours to deliver a pizza from when it is ordered is a continuous random variable with probability density function given by

$$f(x) = \begin{cases} \frac{4}{3} - \frac{2}{3}x & , \ 0 < x < 1 \\ 0 & , \ \text{otherwise.} \end{cases}$$

(a) What is the probability of a pizza being delivered within half an hour of being ordered? (2 marks)

(b) Calculate the mean delivery time to the nearest minute. (3 marks)

(c) Calculate the standard deviation of the delivery time to the nearest minute. (4 marks)