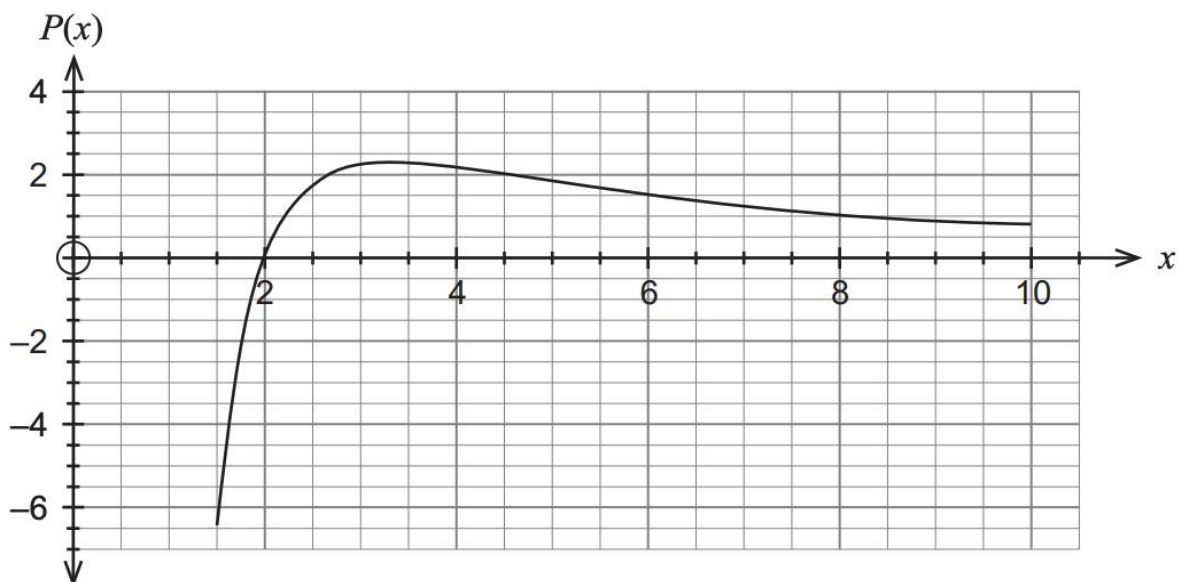


**Question 6****(8 marks)**

A company manufactures and sells an item for \$ $x$ . The profit, \$ $P$ , made by the company per item sold is dependent on the selling price and can be modelled by the function:

$$P(x) = \frac{50 \ln\left(\frac{x}{2}\right)}{x^2} \text{ where } 1.5 \leq x \leq 10$$

The graph of  $P(x)$  is shown below:



- (a) Describe how the profit per item sold varies as the selling price changes. (3 marks)

- (b) Determine the exact price that should be charged for the item if the company wishes to maximise the profit per item sold. (5 marks)