

Question 10**(7 marks)**

The following function is a probability density function on the given interval:

$$f(x) = \begin{cases} ax^2(x-2) & \text{for } 0 \leq x \leq 2 \\ 0 & \text{otherwise} \end{cases}$$

(a) Find the value of a . (3 marks)

(b) Find the probability that $x \geq 1.2$ (2 marks)

(c) Find the median of the distribution. (2 marks)