

True/False - No explanation needed. (2pts)

1. If a PDF $f(x)$ is 0 outside interval $[a, b]$, we do not need to use improper integrals when working with its associated continuous RV. True/False
2. Both mean and the median of an exponential distribution directly depend on the initial condition $f(0)$ of DE $f'(x) = Cf(x)$ and on nothing else. True/False

Problems - Need justification. No justification means **zero!**

1. Find $c \in \mathbb{R}$ such that the following function defines a PDF

$$f(x) = \begin{cases} cx(3-x) & 0 \leq x \leq 3 \\ 0 & \text{otherwise.} \end{cases}$$

(5pts)

2. Calculate the **mean** and **median** of the following PDF

$$f(x) = \begin{cases} \frac{2}{(1+x)^2} & 0 \leq x \leq 1 \\ 0 & \text{otherwise} \end{cases}$$

(5pts)