3. [11 points] Show your work, but no explanation is necessary. For parts **a**, **c**, and **d**, be sure to pay close attention to whether the question is asking you for a median or a mean.
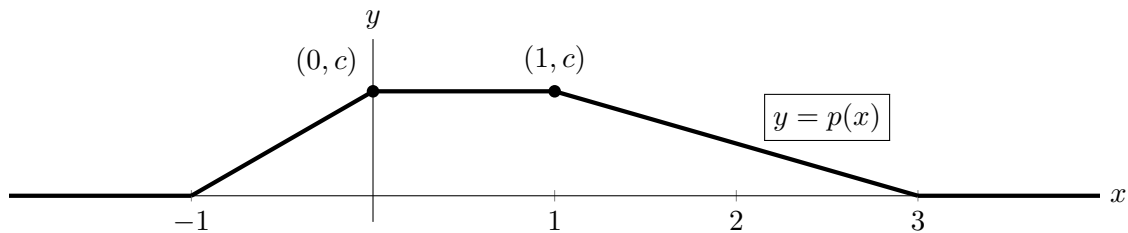
    a. [3 points] Compute the **median** value of a quantity that has cumulative distribution function given by

$$\begin{cases} 0 & \text{if } x < 0 \\ 1 - e^{-(x/r)^k} & \text{if } x \geq 0 \end{cases}$$

Here r and k are constants, and your answer may involve one or both of these constants.

Answer: median = _____

Use the probability density function $p(x)$ shown in the graph below for parts **b-d**.

    b. [2 points] Use the fact that the graph above shows a probability density function to find the value of the constant c.

Answer: $c =$ _____

    c. [3 points] Compute the **mean** of the quantity with probability density function shown in the graph above.

Answer: mean = _____

    d. [3 points] Compute the **median** of the quantity with probability density function shown in the graph above.

Answer: median = _____