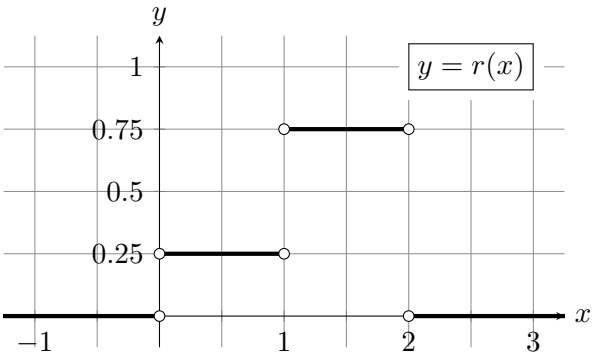
**6**. [10 points]
A survey has recently been conducted on the University of Michigan campus which asked a large number of students to choose a random real number in the interval $[0, 2]$.

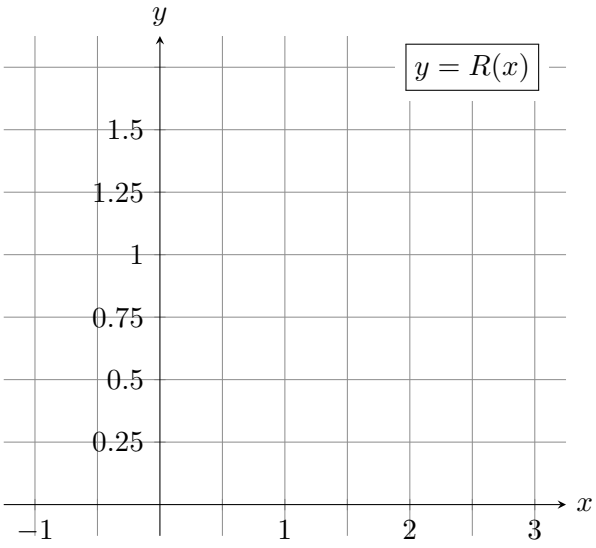
The numbers chosen by students are described by the **probability density function** (pdf) $r(x)$. A graph of $r(x)$ is shown to the right.




You do not need to show your work in this problem, but partial credit may be given for work shown.

**a**. [5 points]
Let $R(x)$ be the **cumulative distribution function** (cdf) corresponding to $r(x)$.
The function $R(x)$ is defined for all real numbers $x$.
On the axes provided to the right, sketch a graph of $R(x)$ **on the interval $[-1, 3]$.**
Be sure to pay attention to:

- where $R(x)$ is and is not differentiable;
- where $R(x)$ is increasing, decreasing, or constant;
- where $R(x)$ is concave up, concave down, or linear;
- the values of $R(x)$ at $x = -1, 0, 1, 2$, and 3.




**b**. [2 points] Compute the fraction of students that chose a number in the interval $[1, 2]$.

**Answer:** _____

**c**. [3 points] Compute the **median** of the numbers chosen among all students.

**Answer:** _____