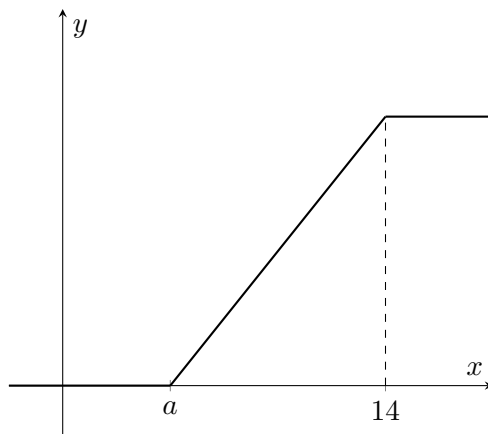


1. [8 points] The graph of a piecewise-linear cumulative distribution function $P(x)$ is given below. The function $P(x)$ is defined for all real numbers x and is constant for $x < a$ and for $x > 14$.



- a. [3 points] The median value for x is 10. Use this fact, and the fact that $P(x)$ is a cumulative distribution function to find the value of a . No justification is needed but you may earn partial credit if you show your work.
- b. [5 points] Find a formula for a probability density function $p(x)$ which corresponds to $P(x)$. Make sure to define your formula for all values of x , using a piecewise-defined formula if necessary. You may give your answer in terms of a .