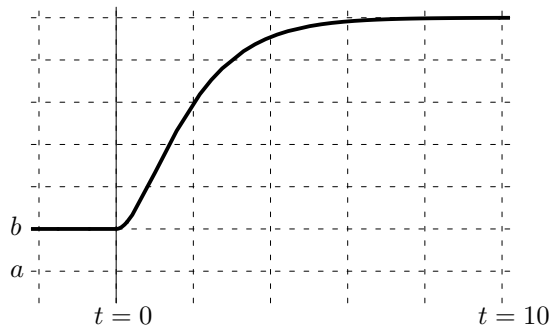
5. [16 points] For all parts of this problem, refer to the graph to the right, which gives a cumulative distribution function $P(t)$ for some density function $p(x)$. The given graph shows all important features of the distribution (for values of t greater and less than those shown, the behavior shown continues).



(a) [4 points of 16] What are the y-values a and b? Why?

(b) [4 points of 16] What is the approximate value of the median of this distribution?

(c) [4 points of 16] Suppose that two points on the graph are $(3.9, 0.90)$ and $(4.1, 0.92)$. Estimate $p(4)$.

(d) [4 points of 16] Continue to suppose that two points on the graph are $(3.9, 0.90)$ and $(4.1, 0.92)$. Estimate $\int_0^4 p(x)\,dx$.