

BE the probability density function solution

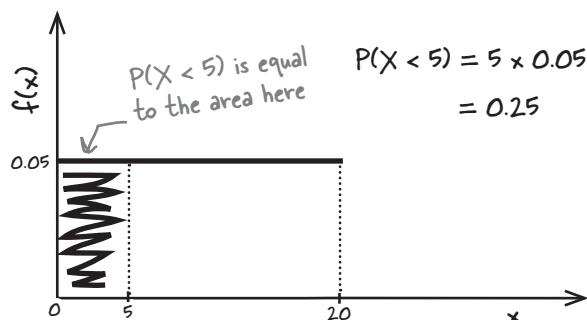
A bunch of probability density functions have lost track of their probabilities.

Your job is to play like you're the probability density function and work out the probability between the specified ranges. Draw a sketch if you think that will help.



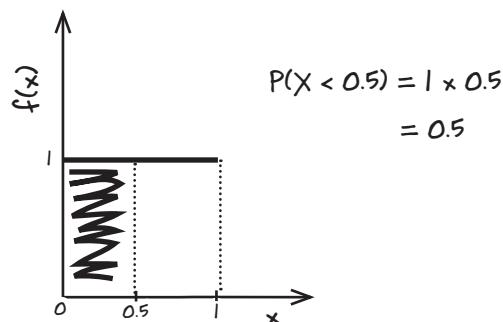
1. $f(x) = 0.05$ where $0 < x < 20$

Find $P(X < 5)$



2. $f(x) = 1$ where $0 < x < 1$

Find $P(X < 0.5)$

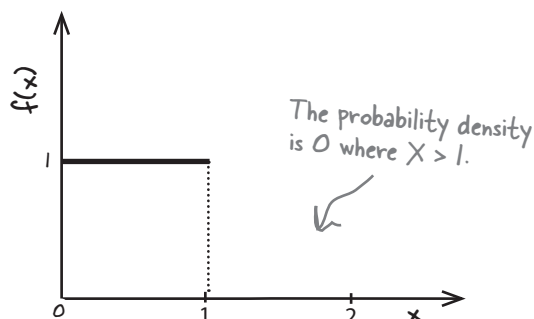


3. $f(x) = 1$ where $0 < x < 1$

Find $P(X > 2)$

The upper limit of x for this probability density function is 1, which means that it's 0 above this.

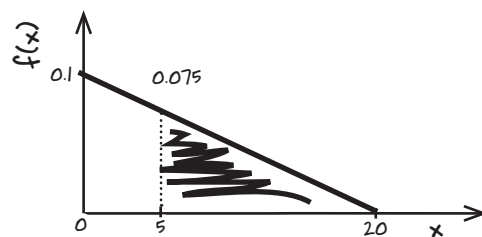
$P(X > 2) = 0$



4. $f(x) = 0.1 - 0.005x$ where $0 < x < 20$

Find $P(X > 5)$

When $x = 5$, $f(x) = 0.075$. This means we have to find the area of a right-angled triangle with height 0.075 and width 15.



$P(X > 5) = (0.075 \times 15) / 2$
 $= 1.125 / 2$
 $= 0.5625$

The area of a triangle is $1/2$ the base multiplied by the height.