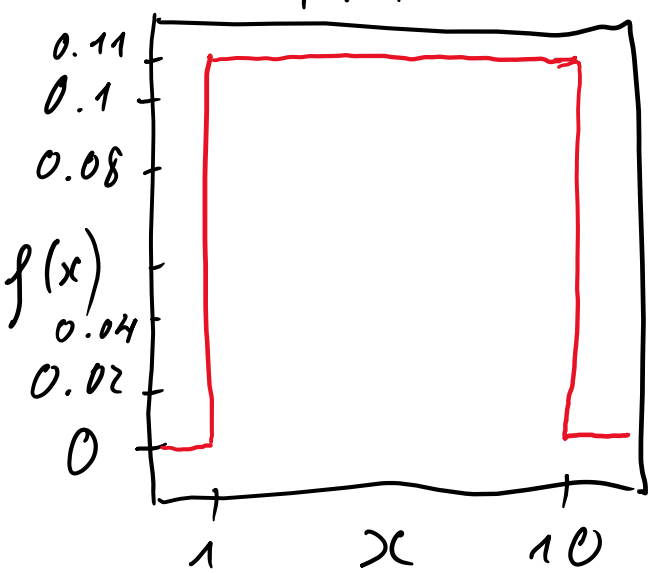
x	1	1.1	2.11	3.456	...	10
$f(x)$	c	c	c	c		c

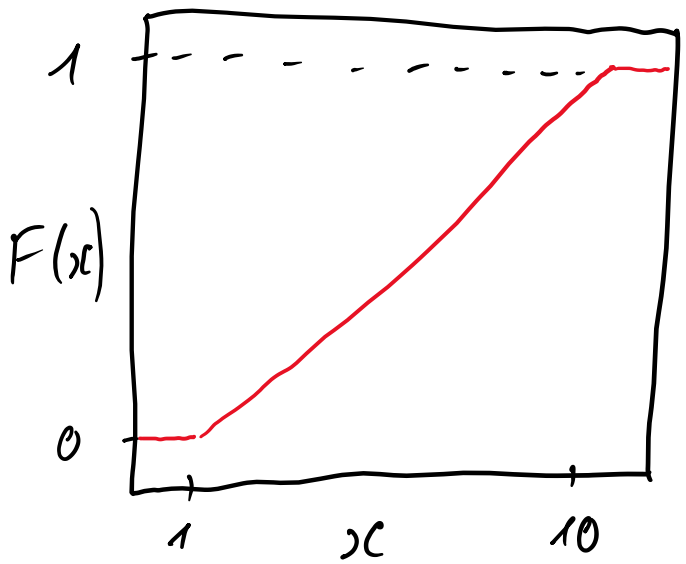
a → 1, b → 10

$$f(x) = \frac{1}{b-a} = \frac{1}{10-1} = \frac{1}{9} = c$$

PDF



CDF



100 points btw $[1, 10]$

1000 $[1, 10]$

plot $(x, f(x))$

x ↓ $[1, 10]$

2) 3 points on the circumference of the circle lie in the same semicircle.

Pin down one of the point, there will be 2 point left.

There are 3 ways to select the first point.

There are $C(3,2)$ ways to select 2 points out of 3 points.

Prob. of the 2nd point to lie in the same semicircle: $\frac{1}{2}$

Prob. " 3rd " : $\frac{1}{2}$

Probability $= 3 \times \frac{1}{2} \times \frac{1}{2} = \frac{3}{2^2} = \frac{3}{2^{3-2}} = \boxed{\frac{3}{4}}$

n points :

$$\frac{n}{2^{n-1}}$$

* Use np.random.uniform to randomly select 3 points on the circumference.
n = 100000 (total experiments)

+ Check if those 3 points lie in the same semicircle
→ count = count + 1

$$\text{Prob.} = \frac{\text{count}}{n}$$