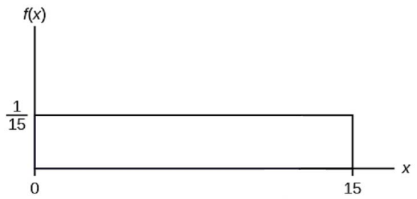
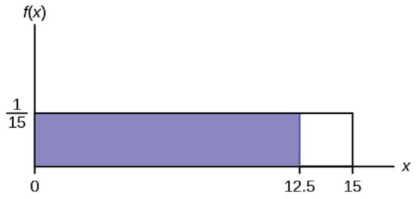
Section 5.2

Example Suppose you have a probability distribution function $f(x) = \frac{1}{15}$, for $0 \leq x \leq 15$. The curve and area for this distribution is below:



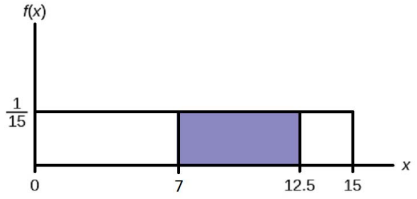
What is the total area under $f(x)$?

Example Suppose you have a probability distribution function $f(x) = \frac{1}{15}$, for $0 \leq x \leq 15$. The curve and area for this distribution is below:



What is the area under $f(x)$, between 0 and 12.5?

Example Suppose you have a probability distribution function $f(x) = \frac{1}{15}$, for $0 \leq x \leq 15$. The curve and area for this distribution is below:



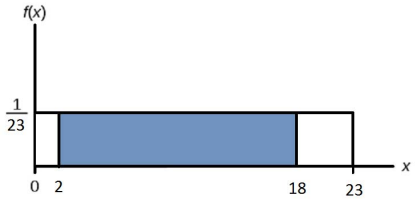
What is the area under $f(x)$, between 7 and 12.5?

Section 5.3

Example Consider the following data given in the spreadsheet:

10.4, 19.6, 18.8, 13.9, 17.8, 16.8, 21.6, 17.9, 12.5, 11.1, 4.9, 12.8, 14.8, 22.8, 20, 15.9, 16.3, 13.4, 17.1, 14.5, 19, 22.8, 1.3, 0.7, 8.9, 11.9, 10.9, 7.3, 5.9, 3.7, 17.9, 19.2, 9.8, 5.8, 6.9, 2.6, 5.8, 21.7, 11.8, 3.4, 2.1, 4.5, 6.3, 10.7, 8.9, 9.4, 9.4, 7.6, 10, 3.3, 6.7, 7.8, 11.6, 13.8, 18.6

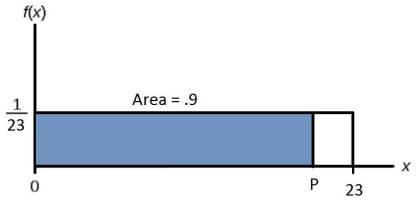
The mean of the data is 11.65 and the histogram is approximately uniform. The range of the data: $U(0, 23)$ so if the distribution is uniform, $f(x) = \frac{1}{23-0} = \frac{1}{23}$, and the distribution is given below.



- Find $P(2 \leq x \leq 18)$.

- How many of the smile times in the data fit in that interval.

- Find the 90th percentile for an eight week old baby's smiling time.



Conditional Probabilities in the uniform distribution

Suppose $X \sim U(3, 10)$

a. Find the PDF

b. Find μ

c. Find σ

d. Find and draw $P(x < 8)$

e. Find and draw $P(x \geq 5)$

f. Find and draw $P(4 < x < 7)$

g. Find and draw $P(x = 6.5)$

h. Find and draw $P(x < 5 \mid x < 7)$

d. Find and draw the 70^{th} percentile