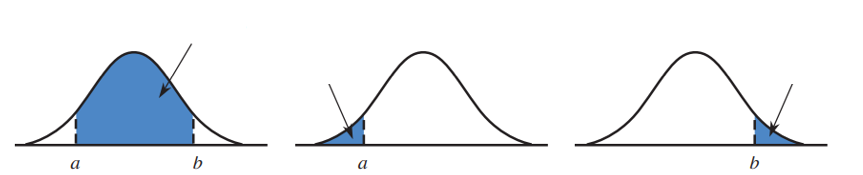
* Density =
* A density curve is a **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** that describes the **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.**

The function that defines this curve is denoted by \_\_\_\_\_\_\_\_ and it is called the**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.**

* Properties of density curve:

1. f(x) 0 ( the curve \_\_\_\_\_\_\_\_\_\_\_\_ dip below the horizontal axis).
2. The probability that X falls in an interval is the \_\_\_\_\_\_\_\_ under \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and above \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.



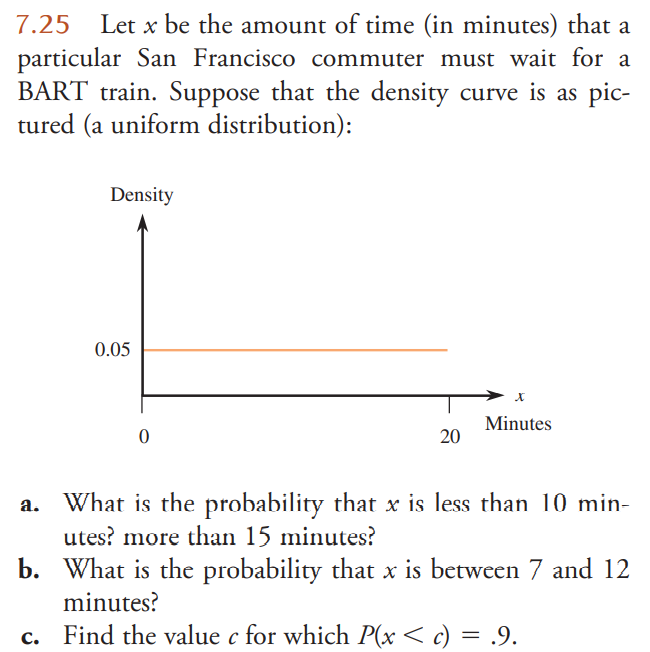
1. The total area under the density curve is \_\_\_\_\_\_\_\_
2. ­\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* P(x=a) = \_\_\_\_\_\_\_\_\_\_\_\_\_
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Practice:

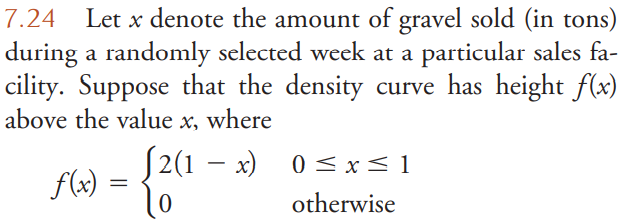
1. Let X denote the lifetime (in thousands of hours) of a certain type of fan used in diesel engines. The density curve of X is as pictured. Shade the area under the curve corresponding to each of the following

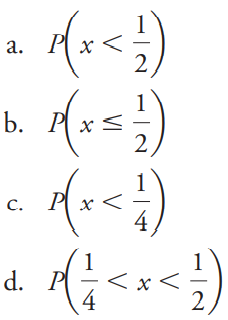


**P(X<30) The probability that the lifetime is at least 25,000 hours**

1. Let X be the amount of time (in minutes) that a particular San Francisco commuter must wait for a BART train. Suppose that the density curve is as pictured (a uniform distribution):
2. ****What is the probability that X is less than 10 minutes? more than 15 minutes?
3. What is the probability that X is between 7 and 12 minutes?

**c.** Find the value c for which P(X<c) = 0.9





* Mean and Median of Density Curves
* Mean:
* Median:

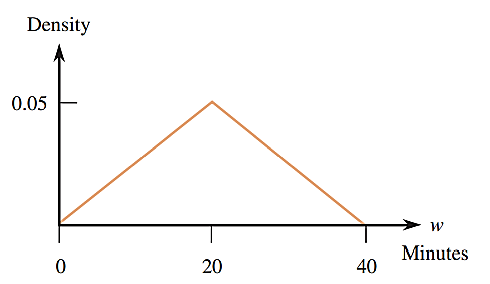
For a symmetric density curve: mean \_\_\_\_\_\_\_ median

For a right-skewed density curve: mean \_\_\_\_\_\_\_ median

* **Homework：**

****

****

1. Referring to Practice 7.25, let X and Y be waiting times on two independently selected days. Define a new random variable W by W=X+Y, the sum of the two waiting times. It can be shown that the density curve of W is as pictured:
2. Prove that the total probability is equal to 1.
3. What is the probability that W is less than 20?

less than 10?

greater than 30?

1. What is the probability that W is between 10 and 30?