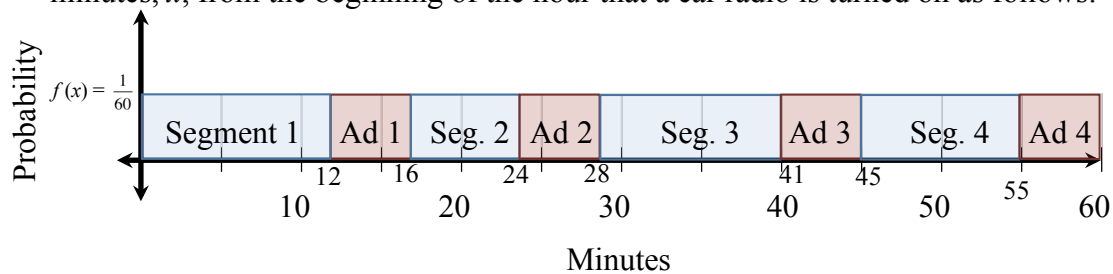

5.2 Uniform Distribution

What is the probability that a commercial will be playing when you turn on your car radio?



Approximately 16 minutes of commercials are played per hour on American radio stations. We can create a probability distribution graph to represent the number of minutes, x , from the beginning of the hour that a car radio is turned on as follows:



Assume that a radio station has scheduled its advertisements according to the distribution above. Let x = the number of minutes from the beginning of the hour-long schedule that have lapsed when the radio is turned on. Define the following events as:

A = Segment 1 is playing at time x .

B = Ad 1 is playing at time x .

C = $x > 45$

D = Ad 4 is playing at time x .

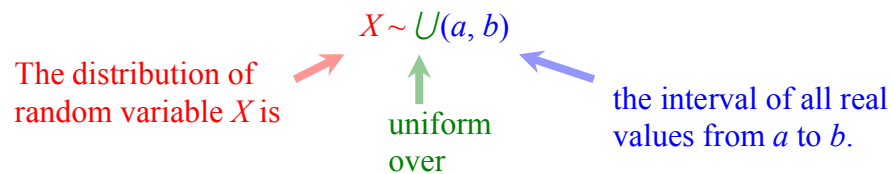
Find the following probabilities, rounded to the nearest hundredth.

2. $P(A) =$	3. $P(B) =$
4. $P(C) =$	5. $P(D) =$
6. $P(D C) =$	7. $P(E) =$

Now let's look at some vocabulary and notation associated with uniform distributions.

A continuous random variable, X has a uniform distribution over an interval from a to b if all values of x are equally likely.

We use the following notation:



The mean of X is $\mu = \frac{a+b}{2}$.

The standard deviation of X is $\sigma = \sqrt{\frac{(b-a)^2}{12}}$.

The probability density function of X is $f(x) = \frac{1}{b-a}$.

