

## Continuous Uniform - Probability of At Most X-Value

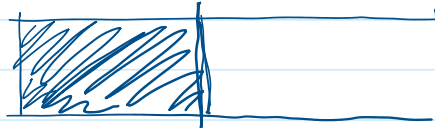
**Problem Setup:** You slept in and are running late for class.

- You have 40 minutes to get to class.
- Your commute times are between 30 and 55 minutes.
- The times follow a uniform distribution.

$$P(x_1 \leq x \leq x_2) = \frac{x_2 - x_1}{b - a}$$

**Question:** What is the probability of being on time or early for class?

**Solution:**  $P(x \leq 40) = ?$



$$\begin{aligned} P(x \leq 40) &= \frac{40 - 30}{55 - 30} \\ &= \frac{10}{25} = 0.4 \end{aligned}$$

$$\begin{aligned} a &= 30 & 40 & & 55 = b \\ x_1 &= 30 & x_2 &= 40 \end{aligned}$$

$= 40\%$  ← 40% chance we will be on time or early