

**3.3-5**

$$Y \sim \text{Unif}(0,1)$$

Define  $W = a + (b-a)Y$ ;  $a < b$

Find the distribution of  $W$

$$P(W \leq w) = P(a + (b-a)Y \leq w) = P(Y \leq \frac{w-a}{b-a})$$

$$F(w) = \begin{cases} 0, & w \text{ less than } 0; \\ \frac{w-a}{b-a}, & 0 \text{ less than or equal to } w \text{ less than } 1; \\ 1, & w \text{ greater than or equal to } 1. \end{cases}$$

$$W \sim \text{Unif}(a, b)$$