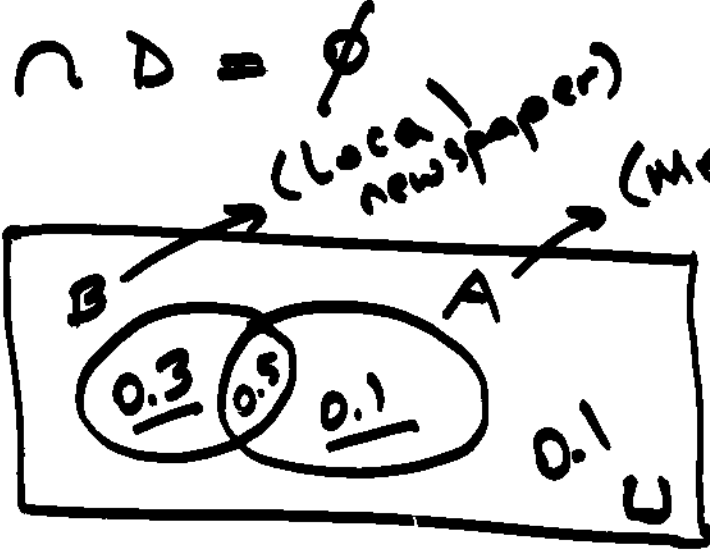


$$C = \{0, 2, 3\} \quad D = \{1, 5, 6\}$$

2.14

$$C \cap D = \emptyset$$



$$P(A) = 0.60$$

$$P(B) = 0.80$$

$$P(A \cap B) = 0.50$$

$$P(U) = 1.0$$

$$0.3 + 0.5 + 0.1 = 0.90$$

Event C: Households subscribed to none of the newspapers.

$$P(C) = 1 - 0.90 = \text{~~0.10~~}$$

$$P(C) = 0.1$$

Roll a dice

$$U: \{1, 2, 3, 4, 5, 6\} \quad N(U) = 6$$

$$P(\underbrace{\text{Rolling} \geq 3}_A) \quad A = \{3, 4, 5, 6\}$$

$$N(A) = 4$$

$$P(A) = \frac{4}{6}$$

$$x = \{28, 27, 31, 45, 16, \dots, 32\}$$

Code x by -20

$$x_c = \{8, 7, 11, 25, -4, \dots, 12\}$$

$$x_c = x - 20 = x + c, \text{ where } c = -20$$

$$\text{Var}(x) = \text{Var}(x_c) = \text{Var}(x - 20)$$

The trees grow 2" in diameter each year.

x_d = the diameters of the trees

$$x_d = \{56, 54, 62, 90, 32, \dots, 64\}$$

$$\begin{aligned} \text{Var}(x_d) &= \text{Var}(2x) = 2^2 \cdot \text{Var}(x) \\ &= 4 \cdot \text{Var}(x) \end{aligned}$$

$$\begin{aligned} \text{Var}\left(\underbrace{\frac{1}{2}}_c \cdot x\right) &= \left(\frac{1}{2}\right)^2 \cdot \text{Var}(x) = \frac{\text{Var}(x)}{4} \\ c &= \frac{1}{2} \end{aligned}$$

Permutation: order is important

$\{a, d, f, g\}$

$\{a, d, g\}, \{a, g, d\}$

$$P_{3,4} = 24$$

Combination: order is not important