Assignment 31

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Part A

(a)

$$\frac{1}{6}$$

(b)

You need to roll 2 specific numbers (1 and 6, 2 and 5, etc) so the chance would be $\frac{1}{6} \cdot \frac{1}{6} = \frac{1}{36}$.

(c)

$$\frac{5}{6} \cdot \frac{3}{6} = \frac{5}{12}$$

Part B

(a)

$$P(A \cap B) = 0.2$$

(b)

$$P(A^c \cap B) = 0.7 - 0.2 = 0.5$$

(c)

$$P(A - B) = 0.4 - 0.2 = 0.2$$

(d)

$$P(A^c - B) = 0.7 - (1 - 0.4) = 0.1$$

(e)

$$P(A^c \cup B) = ((1 - 0.4) + 0.7) - 0.5 = 0.8$$

(f)

$$P(A \cap (B \cup A^c)) = P(A \cap B) = 0.2$$

Part C

$$\frac{20!}{(20-k)! \cdot k!} \cdot \frac{3}{10}^k \cdot \frac{7}{10}^{20-k}$$

Part D

$$\frac{\left(\frac{20!}{(20-k)!\cdot k!}\right)\cdot\left(\frac{70!}{(70-(20-k))!\cdot(20-k)!}\right)}{\frac{100!}{(100-20)!\cdot 20!}}$$

Part E