

Assignment 5  
Craps

In craps, a player rolls two balanced dice. Let:

$A$  = event the sum of the faces is 7

$B$  = event the sum of the faces is 11

$C$  = event the sum of the faces is 2

$D$  = event the sum of the faces is 3

$E$  = event the sum of the faces is 12

$F$  = event the sum of the faces is 10

$G$  = event doubles are rolled

- (1) Find the probability of each event.
- (2) The player wins on the first roll if the sum is 7 or 11. Find the probability of this event.
- (3) The player loses on the first roll if the sum is 2, 3, or 12. Find the probability of this event.
- (4) Find  $P(F \cup G)$ .
- (5) Draw a Venn diagram for  $E$ ,  $F$ , and  $G$  showing cardinal numbers.
- (6) Draw a Venn diagram for  $E$ ,  $F$ , and  $G$  showing probabilities.
- (7) Find  $n(E \cap G)$ . Are they mutually exclusive events?
- (8) Find  $P(G \cap \bar{C})$ .
- (9) Find  $P(\overline{A \cup B})$ .