

Quick Hit 10

1. You roll three six-sided dice.

(a) How many outcomes are in the sample space?

$$6^3 = 216$$

(b) What is the probability that the sum of the dice is at least 5?

~~$E = \{(1,1,1), (1,1,2), (1,2,1), (2,1,1), (1,1,3), (2,2), (3,1), (1,2), (2,1), (2,1,1)\}$~~

$$E = \{(1,1,1), (1,1,2), (1,2,1), (2,1,1)\}$$

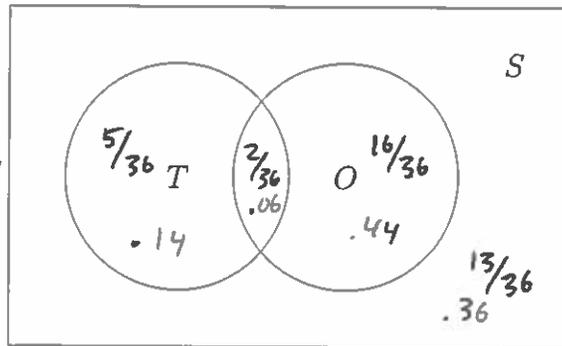
$$P(E^c) = \frac{216 - 4}{216} = \frac{212}{216} \approx .98$$

2. You roll two six-sided dice. Let O be the event that the sum of the dice is odd and let T be the event that the sum of the dice is two, three, ten, or twelve. Fill out the following Venn Diagram, illustrating the probability of each region.

$$P(O) = .5 = \frac{18}{36}$$

$$T = \{(1,1), (1,2), (2,1), (4,6), (5,5), (6,4), (6,6)\}$$

$$P(T) = \frac{7}{36}$$



$$T \cap O = \{(1,2), (2,1)\}$$

$$P(T \cap O) = \frac{2}{36}$$