Probability Assignments.

Basic Probability

1. Two dies are rolled at once. Find out the prob. for sum of nos. being even and one of the die shows 6.

Die 1 \ Die 2	1	2	3	4	5	6
1	2	3	4	5	6	7
2	3	4	5	6	7	8
3	4	5	6	7	8	9
4	5	6	7	8	9	10
5	6	7	8	9	10	11
6	7	8	9	10	11	12

even ✱

* P(Sum of ✱ being even)

$$= \frac{\text{No. of fav. outcomes}}{\text{All possible outcomes}}$$

$$= \frac{18}{36}$$

$$= \frac{1}{2}$$

* P(6 atleast in one die) $= 1 - P(\text{Not getting 6 in die 1}) \times P(\text{not getting 6 in die 2})$

$$= 1 - (5/6) \times (5/6)$$

$$= 1 - 25/36$$

$$= 11/36$$

2. Two dies are rolled at once. Find out the prob. for sum of no. being less than 7.

$$P(\text{Sum less than 7}) = \frac{\text{No. of fav outcomes}}{\text{All poss. outcomes}}$$

$$= 15/36$$

$$= 5/12$$

#3. You toss a fair coin three times: Given that you have observed atleast one heads, what is the prob. that you observe atleast two heads?

HHH ✓ THH ✓
HHT ✓ THT
HTH ✓ TTH
HTT TTT

P(atleast 1 heads) = 7/8
P(atleast 2 heads) = 4/8

P(2 heads / 1 heads) = 4/8 / 7/8
= 4/7

#4. A and B are married couple with two kids. One of them is a girl. What is the prob. that their other kid is also girl?

GG ✓
GB ✓
BG ✓
BB

P(atleast 1 Girl) = 3/4
P(2 Girl) = 1/4
P(2 Girl / 1 Girl) = 1/4 / 3/4
= 1/3