

THE LUCK OF THE DRAW?
(SOME MORE PROBLEMS ABOUT PROBABILITY)

- (1) You have 6 colored beads (red, blue, green, yellow, orange and purple).
 - (a) You want to give one bead each to three friends (Adam, Betsy and Crystal). How many different ways can this be done?
 - (b) You want to give exactly three of the beads, all to Betsy. How many ways can this be done?
- (2) How many different 5 card hands can you make out of a deck of 52 cards (all of which are different)?
- (3) How many different 6 letter “words” can you make with the following letters (each letter must be used exactly the number of times it appears). A “word” means any string of letters...it doesn’t have to spell something!
 - (a) A, B, C, D, E, and F?
 - (b) A, A, A, B, B, B?
 - (c) A, B, B, B, C and D?
 - (d) A, A, B, B, C and C?
- (4) The As are playing the Mets in the world series (best 4 out of 7 games). The As are really good; each game they have a $\frac{2}{3}$ chance of winning.
 - (a) What is the probability that the As win in 4 games?
 - (b) What is the probability that the Mets win in 4 games?
 - (c) What is the probability that the As win in 7 games?
 - (d) ** What is the probability that the As win the series?
 - (e) ** What is the most likely length of the series?

HINT: Pretend in stead of playing a game, you are rolling a dice. If it comes up 1, 2, 3 or 4, the As win. If it comes up 5 or 6, the Mets win.
- (5) You are dealt 5 cards from a standard deck of 52. What are the chances that you get:
 - (a) No face cards (Aces do NOT count as face cards).
 - (b) No pair (all five cards are different values)?
 - (c) ** A pair (two cards with the same number, and the other 3 all different. For example, 2, 5, 5, 7 and 9).
 - (d) ** A full house (A pair and a three of a kind. For example, 7,7, 9, 9 and 9).