

- 1) Fill in the blanks for the following observations about a box of 9 toys, where 7 are stuffed animals and 5 are blue.
  - A. At least \_\_\_\_ is/are **stuffed animals & blue**.
  - B. At most \_\_\_\_ is/are **stuffed animals & blue**.
  - C. \_\_\_\_ is/are NOT **stuffed animals**.
  - D. \_\_\_\_ is/are NOT **blue**.
  
- 2) If we have the maximum #(toys that are **stuffed animals & blue**) in our box of 9 toys, what are the attributes of the other toys in the box which are NOT **stuffed animals & blue**?
  
  
  
  
  
  
  
  
  
  
- 3) What is the maximum #(intersection points from 3 lines)? What about 4 lines?
  
  
  
  
  
  
  
  
  
  
- 4) What is the maximum #(intersection points from n lines)?

- 5) List all the different ways to write a 5-bit binary string. How does this relate to combinations?
- 6) Argue that there are  $C(n,3)$  triangles formed by  $n \geq 3$  lines when they form the maximum # of intersection points  $(n(n-1)/2)$ . (We saw in class that 4 lines form 4 =  $C(4,3)$  triangles when they have 6 intersection points).
- 7) Argue that 4 lines cannot form just 2 intersection points, but can for 0, 1, 3, 4, 5, or 6 intersection points.