Probability Worksheet #8
October 10, 2018
2 Points

Circle one name.

Name: _____ **Name:** _____ **Name:** _____

Note: $P(E|F) = \frac{\text{size of } E \cap F}{\text{size of } F}$.
It is also true that $P(E|F) = \frac{P(E \cap F)}{P(F)}$.

1. Suppose a point is chosen at random from the sample space that is the interval $\Omega = [0, 70]$.
   Let E be the event that the point is in the interval $[10, 40]$.
   Let F be the event that the point is in the interval $[20, 60]$.

   (a) Determine $P(E|F)$.

   (b) Determine $P(F|E)$.

2. A jar contains beads which are either blue or white, and either round or pointy. A bead is drawn at random. Let E be the event that the bead is blue. Let F be the event that the bead is pointy.

   (a) If there are 100 pointy beads and 35 blue pointy beads, determine $P(E|F)$.

   (b) If there are 100 pointy beads and $P(E|F) = 1/4$, determine the number of blue pointy beads.

   (c) If $P(E|F) = 1/5$ and there are 100 blue pointy beads, determine the number of pointy beads.

3. A jar contains beads which are either blue or white, and either round or pointy. There are 200 beads total, with 40 of them being pointy.

	Round	Pointy	Total
Blue			
White			
Total		40	200

Suppose that:
$P(\text{Bead is White}|\text{Bead is Round}) = 1/8$, and
$P(\text{Bead is Blue}|\text{Bead is Pointy}) = 3/20$.
Fill in the table.