Math 141   Take Home Quiz, Quiz 3

Print Name_____________________________

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4 points 1. S is a probability space with outcomes a, b, c, and d. \( P(\{a\})=0.1 \) and \( P(\{d\})=0.25 \) and \( P(\{a,b\})=0.4 \). Find \( P(\{b\}) \) and \( P(\{c\}) \).

4 points 2. A and B are two events in the same sample space. \( P(A \cup B)=0.75 \). \( P(A)=0.5 \) and \( P(A \cap B^C)=0.35 \).

a) Find \( P(B) \).

b) Find \( P(A \cap B) \). Are A and B mutually exclusive?
4 points 3. A Giant gumball machine contains 10 flavors of gumballs. The gumballs are continually replenished so the 10 flavors are equally distributed. 3 boys and 2 girls each buy one gumball.

a) Find the probability that at least two of the children get the same flavor.

b) Find the probability that the 2 girls get the same flavor.

4 pts. 4. A person tosses a six sided die five times and observes the sequence of numbers on top.

a) Find the probability of the event that at most one 4 occurs.

b) Find the probability of the event that at least one 5 or at least one 6 occurs.
4 pts. 5. A box contains 40 balls. There are ten of each color, red, blue, yellow and green and these are numbered one through ten. A person randomly chooses 3 balls.

a) Find the probability that he chooses 2 of the same number and 1 of a different number.

b) Find the probability that he chooses exactly two different colors.