Math 1116, Quiz #10, Fall 2013 Name KEY

Instructions: Show all work. Use exact, fully reduced answers when the numbers are "small". When the numbers involved are large, you may use decimals in your final answer, though be sure to write how you obtained the result for full or partial credit.

1. What is the probability of getting a 5-card hand consisting of all diamonds or the same size hand consisting of all clubs?

$$\frac{13C5}{52C5} \approx 4.95E\text{-}4 \Rightarrow .000495 \times 2 = 9.90E\text{-}4 = .00099$$

↑ Chance of all diamonds or all clubs the same

2. What is the probability of flipping a coin and getting heads, then rolling a die and getting a 6?

$$\frac{1}{2} \cdot \frac{1}{6} = \frac{1}{12}$$

3. What is the probability of having three kids where the first child is a girl, **and** there are exactly two girls in the bunch?

GGB
GBG

$$\frac{2}{16} = \frac{1}{8}$$

4. What is the probability of having three kids where the first child is a girl, **or** there are exactly two girls in the bunch?

GBB
GGB → GGB (duplicates)
GBG → GBG
GGG
BGG

$$\frac{4+3-2}{16} = \frac{5}{16}$$

first child is a girl exactly 2 girls

5. What are the odds of getting a three-number PIN that consists of all even numbers?

Prob. $\frac{5 \cdot 5 \cdot 5}{10 \cdot 10 \cdot 10} = \frac{1}{8}$ 1 : 7

$1 - \frac{1}{8} = \frac{7}{8}$