

(CONDITIONAL) PROBABILITY

January 17, 2007

1. If two fair, standard dice are thrown, which one of the following is the closest to the probability that either the total on the two will be seven or at least one of them will show a four?

- (a) 0.25
- (b) 0.30
- (c) 0.35
- (d) 0.40
- (e) 0.45

2. Suppose a bag contains the 6 letters of the phrase “booboo”. If you take one letter out of the bag at a time and line them up from left to right, what is the probability that you will spell the phrase “booboo”?

- (a) $1/4$
- (b) $1/8$
- (c) $1/16$
- (d) $1/15$
- (e) $1/30$

3. You have three boxes, each with two drawers on opposite sides. Each drawer contains a coin; one has a gold coin on both sides, one a silver coin on both sides, and the third gold on one side and silver on the other. You choose a box at random, open one drawer, and find a gold coin; what is the chance of the coin on other side being silver?

- (a) $1/4$
- (b) $1/3$
- (c) $1/2$
- (d) $2/3$
- (e) $3/4$

4. In a two-child family, the older child is a boy. What is the probability that the younger child is a girl?

- (a) $1/4$
- (b) $1/3$
- (c) $1/2$
- (d) $2/3$
- (e) $3/4$

5. A two-child family has at least one boy. What is the probability that it has a girl?

- (a) $1/4$
- (b) $1/3$
- (c) $1/2$
- (d) $2/3$
- (e) $3/4$

6. An old man witnesses a hit and run accident and reports that the car involved was a blue cab. There are two taxi companies in the town, The Blue with 15 cars and The Green with 85. At the trial the man's vision is tested and he is found to be capable of identifying the correct color cab 80% of the time. Which of the following is closest to the probability that a blue car was involved in the crime?

- (a) 0.5
- (b) 0.62
- (c) 0.75
- (d) 0.12
- (e) 0.41