

MAT1372, Quiz5, Fall2025

ID: _____

Name: Sol

- This quiz consists of 1 question for a total of 10 points.
- You have 15 minutes to complete the quiz.
- Show all work and justify your answers.
- Wishing you success.

1. Imagine you have a bag containing 5 red, 3 blue, and 2 orange chips. $\text{total } 5+3+2=10 \text{ chips}$

(a) Suppose you draw a chip and it is blue. If drawing without replacement, what is the probability the next is

also blue? $P(\text{second chip is blue} \mid \text{first chip is blue}) = \frac{2}{9}$

(b) Suppose you draw a chip and it is orange, and then you draw a second chip without replacement. What is the probability this second chip is blue?

$$P(\text{second chip is blue} \mid \text{first chip is orange}) = \frac{3}{9}$$

(c) If drawing without replacement, what is the probability of drawing two blue chips in a row?

$$P(\text{first is blue AND second is blue}) = \frac{3}{10} \cdot \frac{2}{9} = \frac{2}{30}$$

(d) If drawing **with replacement**, what is the probability of drawing two blue chips in a row?

$$P(\text{first is blue AND second is blue}) = \frac{3}{10} \cdot \frac{3}{10} = \frac{9}{100}$$