

Name: Solutions

Math 130

Date: 2/10/2025

Quiz 3

1. (6 points) A bag contains 8 scrabble letters. The letters in the bag are:

 $E_1 \quad K_5 \quad J_8 \quad Q_{10} \quad P_3 \quad C_3 \quad G_2 \quad I_1$ 

The procedure is to draw a single letter from the bag without looking in the bag. The number next to each letter tells you how many points each letter is worth. Let  $A$  be the event that a vowel is drawn, and let  $B$  be the event that a letter worth 5 or more points is drawn. Find the following:

a)  $A$ 

$$= \{E, I\}$$

b)  $B$ 

$$= \{K, J, Q\}$$

c)  $S$ 

$$= \{E, K, J, Q, P, C, G, I\}$$

d)  $P(A)$ 

$$= \frac{|A|}{|S|} = \frac{2}{8}$$

e)  $P(B)$ 

$$= \frac{|B|}{|S|} = \frac{3}{8}$$

f)  $P(S)$ 

$$= 1$$

2. (2 points) Suppose you are about to flip a coin 3 times. Let  $T$  be the event that coin lands on heads exactly 2 times. Find

$$S = \{HHH, HHT, HTH, HTT, THH, THT, TTH, TTT\}$$

a)  $T$ 

$$T = \{HHT, HTH, THH\}$$

b)  $P(T)$ 

$$P(T) = \frac{|T|}{|S|} = \frac{3}{8}$$

3. (2 points) In order to figure out what the probability of getting a blackjack is in the game of blackjack, Greg played 730 hands and received a blackjack 40 times. What is the probability of being dealt a blackjack?

Let  $B$  be the event that you are dealt a blackjack in the game of blackjack.

$$\text{Then } P(B) \approx \frac{40}{730} = 5.48\%$$