

Name _____

Student Number _____

STA107H5S Quiz 1B

1. (2 marks) Question 1. An experiment consists of selecting 2 natural numbers in the interval $[1, 4]$ at random (order matters). State the sample space of the experiment.

$S = \{ (1,1), (1,2), (1,3), (1,4), (2,1), (2,2), (2,3), (2,4), (3,1), (3,2), (3,3), (3,4), (4,1), (4,2), (4,3), (4,4) \}$

2. (2 marks) Question 2. Let A be the event: "the sum of the numbers are less than or equal to 3". state the sample points that are in the event and find the probability of the event occurring.

$P(A) = 3/36$

3. (3 marks) Question 3. Recall two events are said to be mutually exclusive if $A \cap B = \phi$. Let B be the event "One of the numbers landed on is 2". Is A and B mutually exclusive? Explain.

$A \cap B = \{ (1,2), (2,1) \}$ so not mutually exclusive

Food for thought. If the Experiment was changed to stating the sum of the sides the dice landed on, how would this change the experimental space? **You do not have to answer this question, it is not worth any marks**

4. (3 marks) Question 5. Let A and B be events in a sample space such that $P(A) = 5/10$, $P(B) = 4/10$, and $P(A \cap B) = 3/10$. Find $P(A \cup \bar{B})$

9/10