

**University of Pennsylvania**  
**BIOL4536 Fall 2023**  
**Professor: Gregory R. Grant**  
**QUIZ#1 (MAKEUP)**  
(Prob/Stat)

October 16<sup>th</sup>, 2023

Name: \_\_\_\_\_

**Question 1.** (2 pts.)

Roll a six-sided die and let  $X$  be the number showing plus the time it took to stop rolling. Is  $X$  a discrete or continuous random variable?

**Question 2.** (2 pts.)

In simple linear regression  $Y = \beta_0 + \beta_1 X + \epsilon$ , how many unknown parameters of the model are there?

Answer: \_\_\_\_\_

**Question 3.** (2 pts.)

Suppose  $q(x)$  is the probability function for a discrete random variable with range the natural numbers  $\{1, 2, 3, \dots\}$ . Write down the formula to compute the probability of observing a number that is even.

Answer: \_\_\_\_\_

**Question 4.** (2 pts.)

True or False (circle one): In Linear Regression, the regression curve can be a parabola that opens to the right.

**Question 5.** (2 pts.)

Circle one. In the simple linear regression model  $Y = \beta_0 + \beta_1 X + \beta_2 X^2 + \epsilon$ , the regression curve is a:

- (A) Straight line
- (B) Parabola
- (C) Hyperbola
- (D) Ellipse
- (E) None of the Above