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?

ANSWER: Continuous.

Question 2. (2 pts.)

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

ANSWER: Three, β_0, β_1 and σ.

Question 3. (2 pts.)

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

ANSWER:

$$\sum_{n=1}^{\infty} q(n2)$$

Question 4. (2 pts.)

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

ANSWER: False, that does not pass the vertical line test.

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 $\longleftarrow$ **THIS ONE**
  (C) Hyperbola
  (D) Ellipse
  (E) None of the Above