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 unknown parameters of the model are there?

**ANSWER:** Three, $\beta_0, \beta_1$ and $\sigma$.

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 ← THIS ONE
(C) Hyperbola
(D) Ellipse
(E) None of the Above