# Stats Medic Ultimate Interpretations Practice

1. After a physical education class does the mile run, the teacher records the heart rates of his students and finds they have a mean of 105.3 bpm with a standard deviation of 7.2 bpm. Interpret the standard deviation in the context of the problem.

2. After completing a 5k marathon, Juan is told that his time has a z-score of z = 1.12. Interpret the z-score in the context of the problem.

3. For a biology project, Ebise observes the relationship between the number of birds she sees ($x$) and the outdoor temperature ($y$). After analyzing the data, she finds that the variables have a correlation of $r = 0.43$. Interpret the correlation in the context of the problem.

4. The remaining height (in inches) of a candle burning for a certain number of hours can be modeled by $\widehat{height} = 9.06 - 0.37(hours)$. Interpret the slope and y-intercept of the regression equation in the context of the problem.

   slope:

   y-intercept:

5. Over the course of the semester, Brian has built a model to predict his score on a test based on the number of hours he has put into studying. On his most recent test, Brian studied for 3 hours and the prediction using the model had a residual of -5.36 points. Interpret the residual in the context of the problem.

6. For a variety of vehicles, the pressure applied to the brake pedal ($x$) is recorded along with the distance it took to the vehicle to stop from 60 mph ($y$). For this model, technology gives $r^2 = 0.632$. Interpret the $r^2$ in the context of the problem.

7. A new coffee shop records the number of daily transactions for a random sample of 30 days. A 99% confidence interval for the mean number of transactions per day yields (174.36, 206.21). Interpret the confidence interval in the context of the problem.

8. Stats Medic is interested in sponsoring the Grand Rapids Whitecaps AAA baseball team, but only if the average attendance for games last season is greater than 2,000. Lindsey decides to take a simple random sample of 30 games from last season. She will perform a test of:

$$H_0: \mu = 2000$$
$$H_a : \mu > 2000$$

where μ is the true mean number of people attending Whitecaps games last season. Interpret a Type I error and a Type II error in this setting.

Type I error:

Type II error:

9. The sample had a sample mean of $\bar{x} = 2298.4$ people. After conducting the significance test referenced in the previous problem at the $\alpha = 0.05$ level, Lindsey finds a p-value of 0.0231. Interpret the p-value in the context of the problem and give an appropriate conclusion for the significance test.

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