

You have 25 minutes. Take your time!

Note that this sheet has **two sides**.

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

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ONE: What's the difference between regression and correlation?

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TWO: The statistic  $\bar{x}$  is a measure of centre, and  $s$  and  $s_{\bar{x}}$  are both measures of spread or variability.

1) name each statistic, and indicate which parameter each statistic is an estimator of:

a)  $\bar{x}$  is called the \_\_\_\_\_ and is an estimator of \_\_\_\_\_

b)  $s$  is called the \_\_\_\_\_ and is an estimator of \_\_\_\_\_

c)  $s_{\bar{x}}$  is called the \_\_\_\_\_ and is an estimator of \_\_\_\_\_

2) According to the Central Limit Theorem,  $s$  and  $s_{\bar{x}}$  are related. How?

THREE: A simple linear regression analysis was performed on data collected from young red pine stands. These stands were all planted with trees that were three years old at the time of planting. Total height (in feet) and age (in years since planting) were measured on 75 trees. Below is a plot of the fitted regression line.



1. Label the axes fully.
2. What are the estimates for the slope and intercept, approximately? Write the equation for the line including these values.
3. (a) What is the predicted height for an 8-year-old tree, approximately? (b) Plot and label the point on the figure.