You have 30 minutes. Take your time!
Note that this sheet has ONE side.

**Name:** A. Student

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**ONE:** A total of 240 trees were sampled across 8 plots that were 1/5th acre in size. What is the estimated mean number of trees per acre?

\[
\frac{240 \text{ trees}}{8 \text{ plots}} \times \frac{1 \text{ plot}}{1/5 \text{ acre}} = \frac{240 \times 5}{8} = 150 \text{ tpa}
\]

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**TWO:** We’ve been in the field measuring a northern hardwoods stand owned by GMO Renewable Resources for the past two weeks.

(a) When writing your inventory plan, how did you determine the number of plots required in your inventory?

- used pilot data to estimate \( \sigma \), then sample size formula \( n = \left( \frac{t - \alpha}{\varepsilon} \right)^2 \) and iterate to solve for \( n \) where \( t \) used same \( n \) (-1) df.

(b) Give the form/equation of the confidence interval you created for stand basal area in your inventory.

\[
\overline{y} \pm t \cdot s_g
\]

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**THREE:** Trees are usually sold in some kind of cubic unit, like “board feet”, which is a measure of volume. What is a “board foot” and how is tree volume expressed in board feet different from cubic feet?

1 bd. ft. = volume of a board 12” x 12” x 1”

Usually bd. ft. are scale volume, meaning there is some deduction for kerf & waste & shrinkage.

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**FOUR:** How are point counts for avian (bird) inventory different from sampling to estimate stand basal area in forest inventory? Explain briefly.

- they aren’t, really; they’re just S.R.S.
- operationally, there are differences in how you detect individuals and control measurement error.