1. Calculate the short side length of a rectangular 1/80th hectare plot in meters. The long side is 40 m. 
   1 hectare = 10,000 m², π = 3.14159

2. Calculate the radius of a circular 1/35th acre plot in feet. 1 acre = 43560 ft², π = 3.14159

3. Calculate the area of a stand in acres if it is a rectangle 13 chains wide by 27 chains long.

4. A tree has a dbh of 12 inches, bark thicknesses of 0.5 and 0.8 inches, and a 5-year ring width of 0.8 inches. What is BAG₅, including units?

\[ BAG₅ = \left( \frac{BA_{now}}{BA₅} \right)^{\frac{5}{1}} - 1 \times 100 \]
5. Draw a diameter distribution and correctly label the axes for an even-aged stand.

6. You count 14 cones per tree and 22 seeds per cone in a longleaf pine stand. Assuming you need 50,000 seeds per acre to successfully regenerate the stand, how many seed trees should you leave per acre? Is this a good year to regenerate if you currently have 61 TPA in the overstory?

7. You are managing a 440 acre stand using a selection silvicultural system relying on area regulation. To meet your product objectives, your target is a 55 year rotation. What area within the stand can be harvested at each entry if the landowner would like income on a cutting cycle of 6 years?

8. If a stand is 200 acres, is on a 15 year cutting cycle in a selection system being regulated by area, and 40 acres is harvested at each entry, what is the rotation length?

9. A group cut is circular and 75 feet in RADIUS. What is the area of the group cut in acres?
10. There are 150 trees in the 11 inch diameter class, and 225 trees in the 10 inch diameter class. What is the q-factor of this stand, assuming it follows a reverse-J diameter distribution?

11. A stand was planted on a 7 x 13 foot spacing. How many trees per acre were planted, including units?

12. List two spacings you can use to plant approximately (i.e. +/- 20) 600 trees per acre.

13. You are ordering seedlings to plant a 173 acre stand planted at 436 trees per acre. Document your calculations to determine what you will order.

14. You are prescribing fertilizing a stand at a rate of 100 lbs. of N and 25 lbs. of P per acre (elemental rates). How many lbs. of DAP (18-44-0) and Urea (44-0-0) will you apply? Document all your work. 

\[ P_2O_5 = 43.6\% \text{ P}; K_2O = 83.3\% \text{ K} \]
15. What is the relative density of a loblolly pine stand if QMD = 9 inches and there are 300 trees per acre? Should you thin this stand?

16. If there are 125 trees per acre and a basal area of 215 ft²/ac, what is the QMD? What is likely to be the most common product class in this stand, based on size alone?

17. A stand with 360 trees per acre and a basal area of 240 ft²/ac is third row thinned. What is the QMD after thinning?

18. Douglas-fir in California has a max SDI of 600. You cruise a stand and find 190 ft²/ac and 275 TPA. What is the relative density, and what silvicultural treatment would you recommend based on this?

\[ QMD = \frac{BA}{TPA} \times 0.005454 \]
\[ SDI = TPA * [(QMD/10)^{1.605}] \]

19. What total height would a loblolly pine have to reach before you would be able to prune the lowest 21 feet of the bole without risking reduced growth.