Mth 112   Lab 1   *Franz Helfenstein*   **NAME** _____

Perform your work on **separate paper as necessary**. Write your answers on **this page**. Answers must be **boxed** or **circled** and clearly **legible**. Where possible write your answer as an **exact** integer or fraction otherwise use **two** decimal accuracy. **Units** required. 20 pts
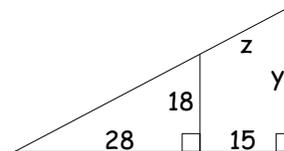
1) (a) Convert 65° 20' 40" to decimal degrees.

    (b) Convert 125.2722 to DMS.

2) Use Similar Triangles and the Pythagorean Thm to find

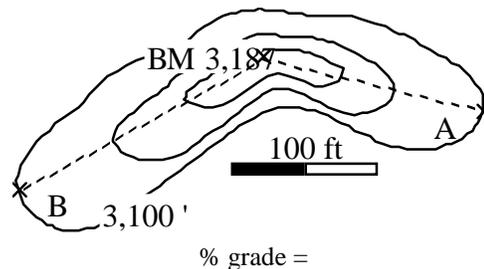   (a) y =   (b) z =

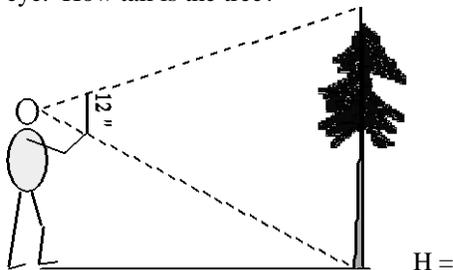3) Solve for x

$$10 - 6\,\frac{2 - 3x}{5} = \frac{3x + 1}{2}$$

4) Find the average grade from Pt. A to BM 3,187'. Round to nearest 10th %.

    % grade =

5) Joe stands 65 ft from a tree and holds a ruler 18" from his eye. How tall is the tree?

    H =

6) Solve for x: $3x(1 + 5x) = 2(x + 1)$ Give exact answer.

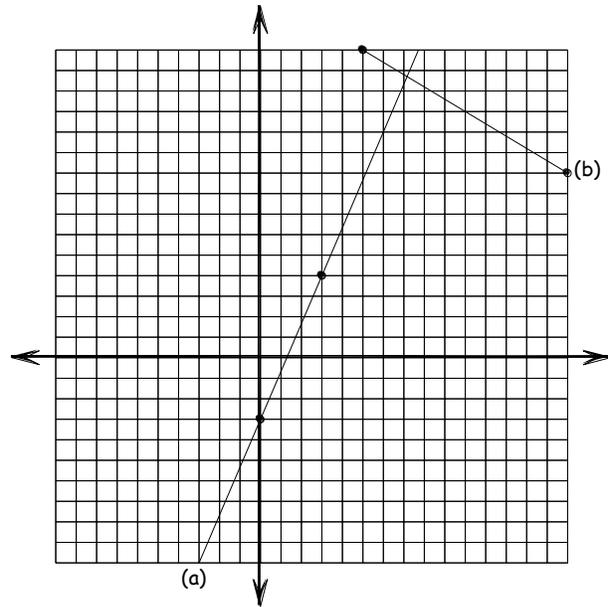7) (a) Convert S 40° W to θ as a <u>positive radian angle</u>.

    (b) Convert θ = 23.375π rad to its <u>azimuth direction</u>.

8) A 28" tire rotates at 420 rpm. How fast is the vehicle going in <u>mph</u>?

9) Use the marked points to find the Equation of line (a) &
   line (b) in slope-intercept form.

   (a)

   (b)

10) A fisherman has a reel (radius 4.2 cm) with such fine line that it does not change the diameter appreciably. The bait is let
    out 200 m. How many turns of the reel will it take to reel the line back in?

BONUS
A 12 ft vertical retaining wall is erected on a hill with a 20% grade. The fill is to be graded back at 12%. Find c, where the
fill meets the hill.