MTH 28.5 LECTURE NOTES (Ojakian)

Topic 34: Applying Right Triangles

OUTLINE

(References: 5.4 in Precalculus Book)

1. Solving Right Triangles

2. Applications

---

1. <u>Opening Questions</u>

    (a) Devise a strategy for finding the distance across a lake?

    (b) Devise a strategy for finding the distance across a river? (what is the *relevant* difference between a lake and a river)

2. <u>Solving a right triangle when you know TWO sides</u>

    (a) Just the Pythagorean theorem!

3. <u>Solving a right triangle when you know ONE side and ONE angle</u>

    (a) Apply a trig function of the angle which includes the *unknown* side and a *known* side.

    (b) Solve for the unknown side.

    (c)

    PROBLEM 1. *Solve each right $\triangle ABC$ using the given information. In each case $m\angle C = 90^o$.*

       i. $m\angle A = 80^o, b = 72$.

      ii. $m\angle A = 30^o, c = 33$.

    PROBLEM 2. *Solve the right $\triangle ABC$, where $m\angle C = 90^o$, $m\angle B = 60^o$, and $b = 8$.*

4. <u>Applications</u>

    PROBLEM 3. *Do both opening questions: the distance across a lake and the distance across a river (for imagined numbers).*

    PROBLEM 4. *The angle of elevation of the top of a fir tree is 68° from an observation point 70 ft. from the base of the tree. Find the height of the tree.*

    PROBLEM 5. *From Precalc Book (section 5.4) - some of problems 52 to 55.*