

MTH 28 LECTURE NOTES (Ojakian)

Topic 21: Applying Right Triangles

OUTLINE

(References: 5.4 in Precalculus Book)

1. Solving Right Triangles
 2. Applications
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1. Opening Questions

- (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. Solving a right triangle when you know TWO sides

- (a) Just the Pythagorean theorem!

3. Solving a right triangle when you know ONE side and ONE angle

- (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 $m\angle C = 90^\circ$.

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

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

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

4. Applications

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.