Mini-Test

→ Similar Δ's and Congruent Δ's
↳ study the quiz

→ $S\frac{O}{H}\ C\frac{A}{H}\ T\frac{O}{A}$ / SOH CAH TOA

→ Solving Δ's.
↳ all 3 angles, all 3 sides →

$\angle A =$	$a =$
$\angle B =$	$b =$
$\angle C =$	$c =$

Hand in your homework

Pg. 371 - 372 # 2 – 9

Pg. 379 – 381 # 4 – 7, 8acd, 11, 12, 13

The handout

pg 403-404: #1, 2, 5ii a and b, 7.

Extra: pg 416: #2, 4, 5, 6, 8, 9

Chapter 7 – Similar Triangles and Trigonometry

7.6 Problem Solving with Right Triangles

Reminder **AGAIN**: You need to keep in your mind:

SOH CAH TOA

Also, keep in mind that **Pictures are your Friends**

The best way to learn how to solve problems, is to solve problems, so let's jump right in!

Example 7.6.1

From your text: Pg. 412 #4

A tree that is 9.5 m tall casts a shadow that is 3.8 m long. What is the angle of elevation of the Sun?

TOA

$\tan A = \frac{9.5}{3.8}$

$\angle A = \tan^{-1}\left(\frac{9.5}{3.8}\right)$

$\angle A = 68.2°$

The sun is at an elevation of 68.2°

Note:

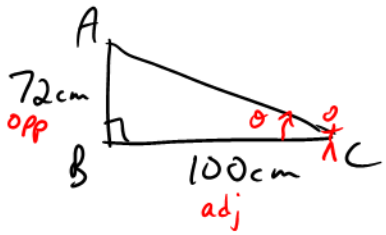
Angle of Elevation: the angle up from the horizontal ↑elevation

Angle of Depression: the angle down from the horizontal ↓depression

Example 7.6.2

From your text: Pg. 412 #6

A building code states that a set of stairs cannot rise more than 72 cm for each 100 cm of run. What is the maximum angle at which the stairs can rise?



TOA

$\tan C = \frac{72}{100}$

$\angle C = \tan^{-1}\left(\frac{72}{100}\right)$

$\angle C = 36°$

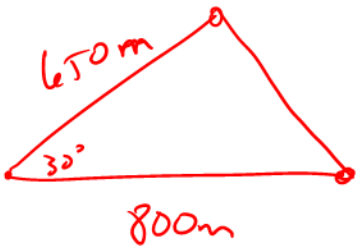
The maximum rise is 36°.

Example 7.6.3

From your text: Pg. 413 #8

Firefighters dig a triangular trench around a forest fire to prevent the fire from spreading. Two of the trenches are 800 m long and 650 m long. The angle between them is 30°. Determine the area that is enclosed by these trenches.

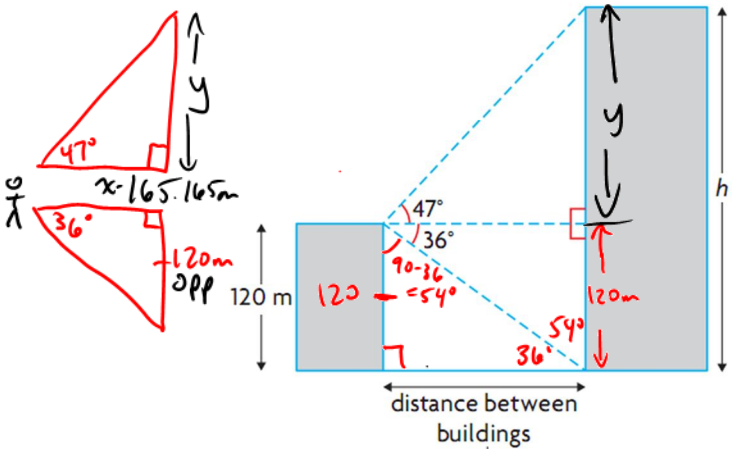
solve at a later time



Example 7.6.4

From your text: Pg. 414 #15

A video camera is mounted on top of a building that is 120 m tall. The angle of depression from the camera to the base of another building is 36°. The angle of elevation from the camera to the top of the same building is 47°. Find the distance between the buildings and h.



TOA

$\tan 36 = \frac{120}{x}$

$x = \frac{120}{\tan 36}$

$x = 165.165$

$165.165 \times (\tan 47) = \left(\frac{y}{165.165}\right) \times 165.165$

$177.12 = y$

$h = 120 + 177 = 297$

The distance between the buildings is 165m and its height is 297m.

Class/Homework: Pg. 412 – 414 ~~#4 – 17~~ (Note that four of these are already done!)

412: 4 - 6, 9 - 13, 15 - 17.