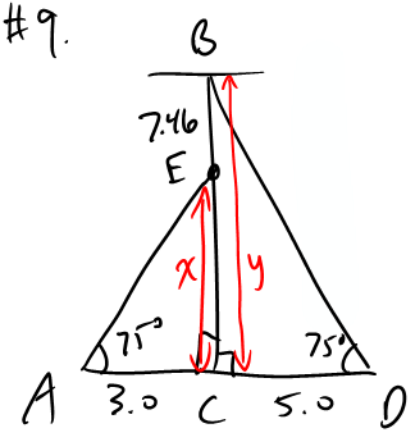
#9.



$y = x + 7.46$

$\angle A = \angle D$ 75° (given)

$\angle ACB = \angle DCB$ 90°

$\triangle ACB \sim \triangle DCB$ by AA~

$$\frac{y}{x} = \frac{5}{3}$$

$$\frac{x+7.46}{x} \times \frac{5}{3}$$

$3(x+7.46) = 5x$

$3x + 22.38 = 5x$

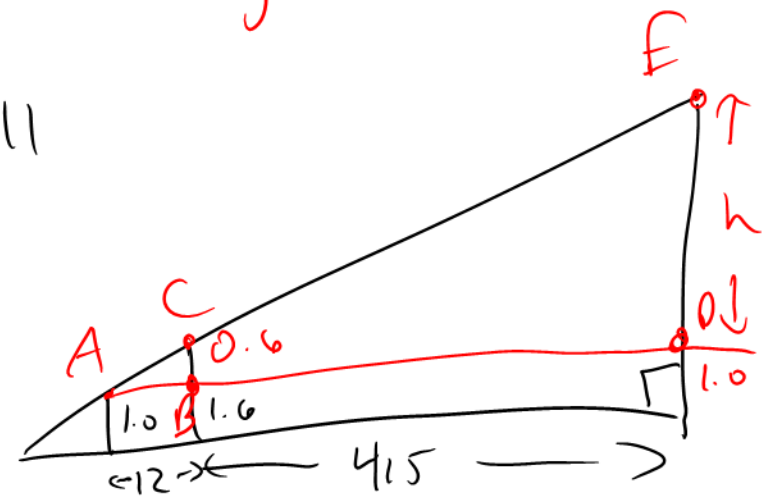
$-3x$

$\frac{22.38}{2} = \frac{2x}{2}$

$11.19 = x$

Height of the pole is $11.19 + 7.46 = 18.65$ m

#11



$\angle A = \angle A$ same

$\angle ABC = \angle ADE$ 90°

$\therefore \triangle ABC \sim \triangle ADE$ by AA~

$$0.6 \times \left(\frac{h}{0.6}\right) = \left(\frac{427}{12}\right) \times 0.6$$

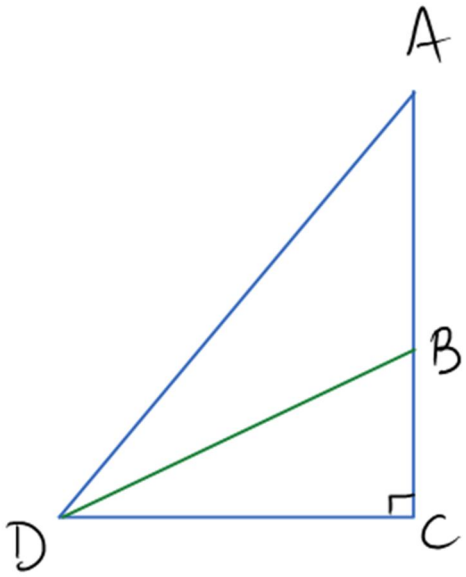
$h = 21.35$

The hill is $21.35 + 1 = 22.35$ m

Chapter 7 – Similar Triangles and Trigonometry

7.3 &7.4 Right Angle Triangle **Trigonometry**

Consider the picture:



Notice that $\overline{BC} < \overline{AC}$, and that

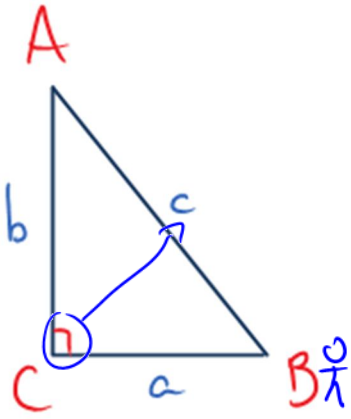
$\measuredangle BDC < \measuredangle ADC$

This suggests that there is a **mathematical relationship** in triangles between lengths of sides and size of angles

That relationship can be described by what we call **TRIGONOMETRY!!**

The **Primary Trigonometric Ratios**

Given the Right ΔABC



For $\measuredangle B$ we call side:

b → opposite

a → adjacent (beside)

c → hypoteneuse

The Trig **Ratios**

SOH CAH TOA

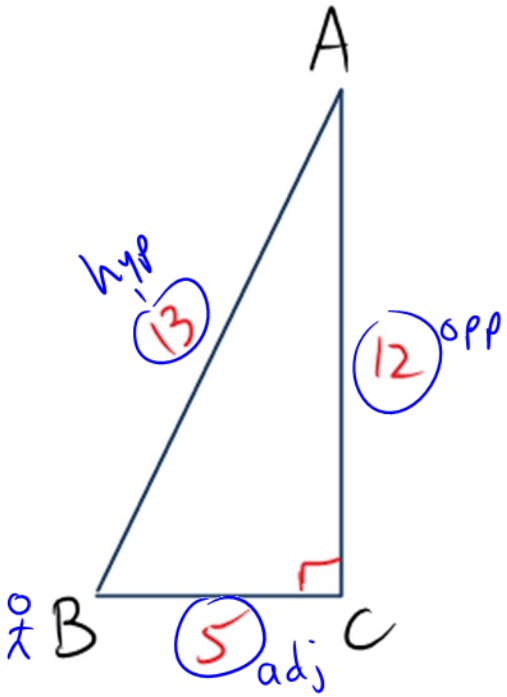
Sine: $\sin(B) =$ $\frac{\text{opposite}}{\text{hypoteneuse}} = \frac{\text{opp.}}{\text{hyp.}}$

Cosine: $\cos(B) =$ $\frac{\text{adjacent}}{\text{hypoteneuse}} = \frac{\text{adj}}{\text{hyp.}}$

Tangent: $\tan(B) =$ $\frac{\text{opposite}}{\text{adjacent}} = \frac{\text{opp}}{\text{adj}}$

Example 7.3.1

Given ΔABC, determine the primary trig ratios for angle B.



$\sin B = \frac{\text{opp}}{\text{hyp.}}$

$\sin B = \frac{12}{13}$

$\cos B = \frac{\text{adj}}{\text{hyp}}$

$\cos B = \frac{5}{13}$

$\tan B = \frac{\text{opp}}{\text{adj}}$

$\tan B = \frac{12}{5}$

Class/Homework: Trig Worksheet;