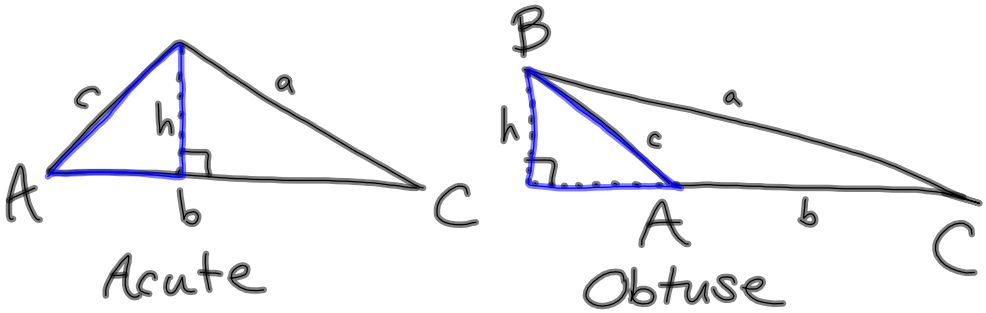
7.1/7.2 Area of a Triangle



$\text{Area} = \frac{1}{2} \cdot \text{base} \cdot \text{height}$

$= \frac{1}{2} \cdot b \cdot c \sin A$

$= \frac{1}{2} a c \sin B$

$= \frac{1}{2} a b \sin C$

$\sin A = \frac{h}{c}$

$h = c \sin A$

Find the area of the triangle.

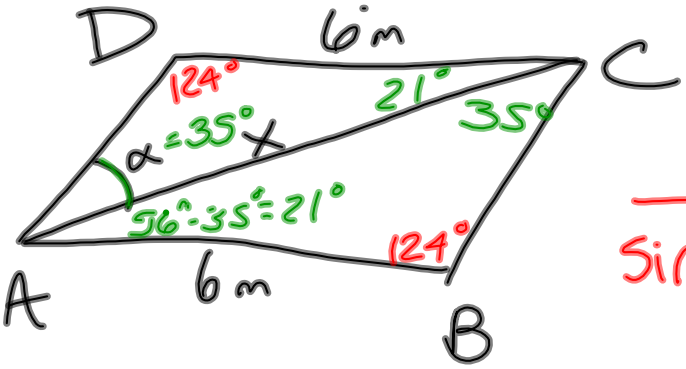
$A = 50°, b = 13\ cm, c = 6\ cm$

$\text{area} = \frac{1}{2}bc\sin A$

$= \frac{1}{2}(13)(6)\sin 50°$

$\approx \boxed{29.9\ cm^2}$

7.1 #28



$\angle BAD = 56°$

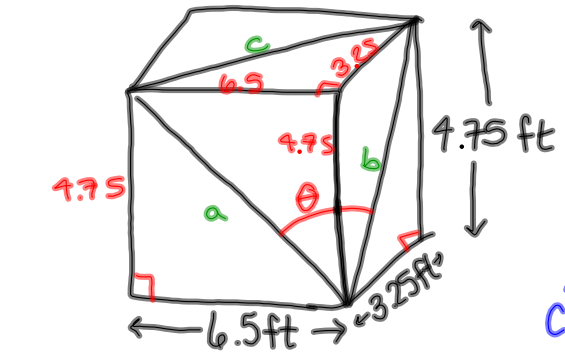
$\alpha = 35°$

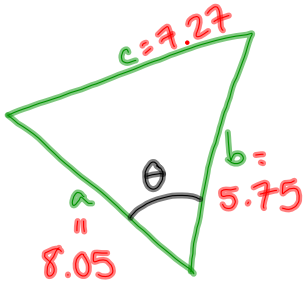
$\frac{X}{\sin 124°} = \frac{6}{\sin 35°}$

$X = \frac{6\sin 124°}{\sin 35°}$

$\approx \boxed{8.7\ m}$

7.2 #41





1. find lengths of diagonals using Pythagorean Theorem
2. find θ using Law of Cosines

$c^2 = a^2 + b^2 - 2ab\cos\theta$

$2ab\cos\theta = a^2 + b^2 - c^2$

$\cos\theta = \frac{a^2+b^2-c^2}{2ab}$

$\theta = \cos^{-1}\left(\frac{a^2+b^2-c^2}{2ab}\right)$

$= \cos^{-1}\left(\frac{8.05^2+5.75^2-7.27^2}{2(8.05)(5.75)}\right)$

$\approx 60.9°$

Handout Homework:

7.1 #13-21 odd ; 29, 30, 33, 34, 35

7.2 #9-19 odd, 25-29 odd ; 38, 43, 46, 47, 48