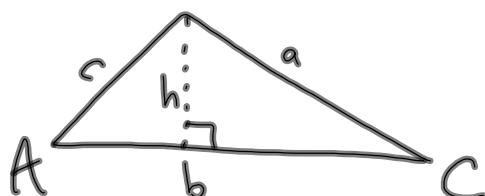


7.1/7.2 Area of a Triangle

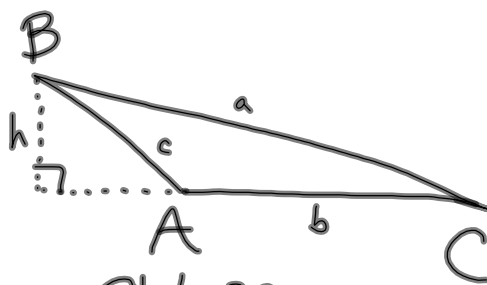
Acute

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

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

$$= \frac{1}{2} ac \sin B$$

$$= \frac{1}{2} ab \sin C$$



Obtuse

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

$$h = c \cdot \sin A$$

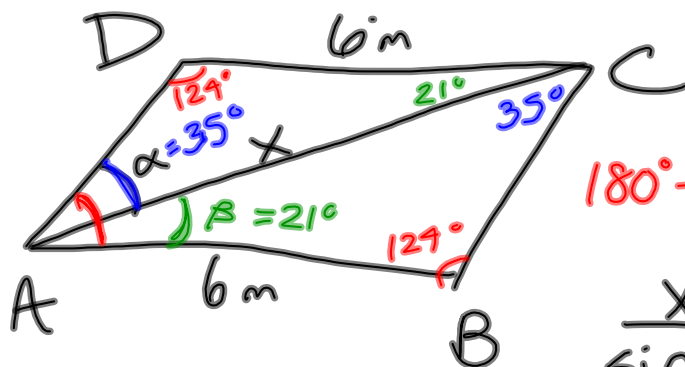
Find the area of the triangle.

$$A = 50^\circ, b = 13 \text{ cm}, c = 6 \text{ cm}$$

$$\text{area} = \frac{1}{2} \cdot 13 \cdot 6 \cdot \sin 50^\circ$$

$$\approx \boxed{30 \text{ cm}^2}$$

7.1 #28



$$\beta = 56 - 35 = 21^\circ$$

$$\alpha = 35^\circ$$

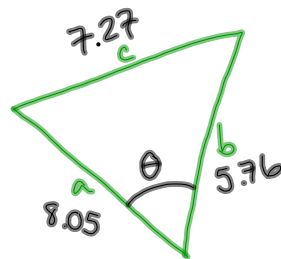
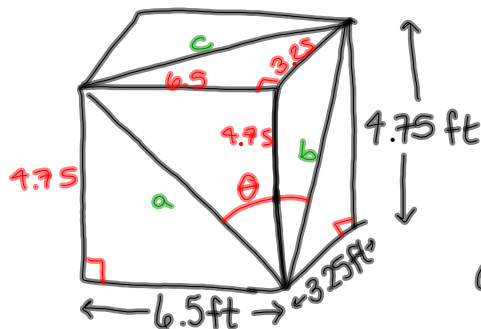
$$\angle BAD = 56^\circ$$

$$180^\circ - 56^\circ = 124^\circ$$

$$\frac{x}{\sin 124^\circ} = \frac{6}{\sin 35^\circ}$$

$$x = \frac{6 \sin 124^\circ}{\sin 35^\circ} \approx \boxed{8.7 \text{ m}}$$

7.2 #41



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

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

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

1. use Pythagorean Thm. to find lengths of diagonals.
2. apply Law of Cosines to find θ . $\theta = \cos^{-1}\left(\frac{a^2 + b^2 - c^2}{2ab}\right)$

$$a = 8.05, b = 5.76, c = 7.27$$

$$\theta = \cos^{-1}\left(\frac{8.05^2 + 5.76^2 - 7.27^2}{2(8.05)(5.76)}\right)$$

$$\approx \boxed{60.9^\circ}$$

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