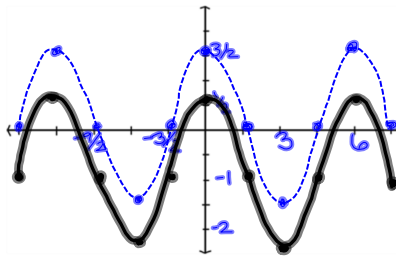


Review:

1. Graph $y = \frac{3}{2} \cos \frac{\pi}{3} x - 1$

amplitude: $\frac{3}{2}$
 period: $\frac{2\pi}{(\pi/3)} = \frac{2\pi}{1} \cdot \frac{3}{\pi} = 6$
 horizontal shift: none
 vertical shift: down 1

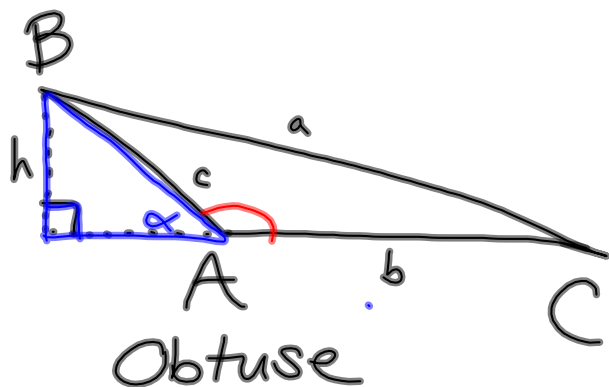
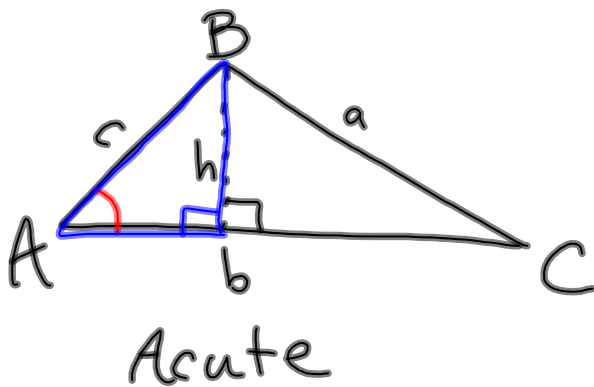
$y = a \cdot f(bx+c) + d$
 amp = $|a|$
 period = $\frac{\pi \text{ or } 2\pi}{|b|}$
 H. shift = $-\frac{c}{b}$
 V. shift = d



2. Find $\cos 2\theta$ given that $\sin \theta = -\frac{12}{13}$ and $\cos \theta = -\frac{5}{13}$

$$\begin{aligned} \cos 2\theta &= \cos^2 \theta - \sin^2 \theta \\ &= (\cos \theta)^2 - (\sin \theta)^2 \\ &= \left(-\frac{5}{13}\right)^2 - \left(-\frac{12}{13}\right)^2 \\ &= \frac{25}{169} - \frac{144}{169} \\ &= \boxed{\frac{-119}{169}} \end{aligned}$$

7.1/7.2 Area of a Triangle



area of a triangle = $\frac{1}{2} \cdot \text{base} \cdot \text{height}$

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

$h = c \cdot \sin A$

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

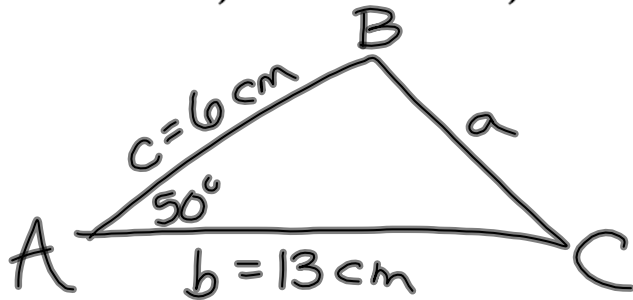
Area of a triangle

area
↓

$$K = \frac{1}{2} bc \cdot \sin A$$
$$= \frac{1}{2} ac \cdot \sin B$$
$$= \frac{1}{2} ab \cdot \sin C$$

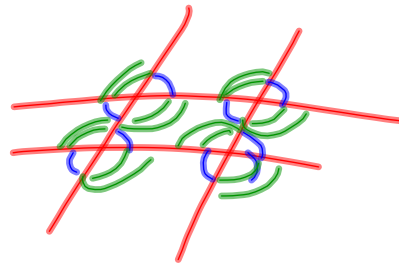
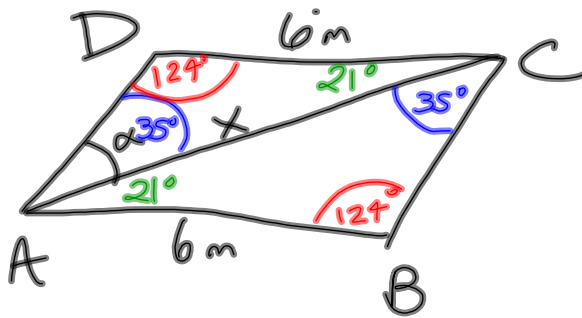
Find the area of the triangle.

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



$$\text{area} = K = \frac{1}{2}(6 \text{ cm})(13 \text{ cm}) \sin 50^\circ$$
$$= \boxed{29.9 \text{ cm}^2}$$

7.1 #28



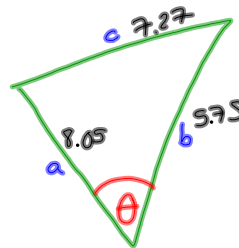
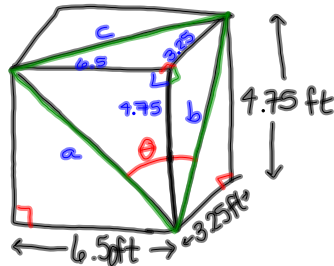
$\angle BAD = 56^\circ$
 $\alpha = 35^\circ$
 $x = ?$

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

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

$$(6 * \sin(124)) / (\sin(35))$$

7.2 #41



$$a^2 = 6.5^2 + 4.75^2 \quad b = \sqrt{3.25^2 + 4.75^2} \quad c = \sqrt{6.5^2 + 3.25^2}$$

$$a = \sqrt{6.5^2 + 4.75^2} \quad \approx 8.05 \quad \approx 5.75 \quad \approx 7.27$$

SSS \Rightarrow Law of Cosines

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

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

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

$$\theta = \cos^{-1} \left(\frac{a^2 + b^2 - c^2}{2ab} \right) \approx \boxed{60.9^\circ}$$

$$= \cos^{-1} \left((a^2 + b^2 - c^2) / (2 * a * b) \right)$$

Homework to turn in Friday:

7.1 Textbook #1,2,4,6,7

7.1 Handout #13-21odd

7.2 Handout #9-19 odd

7.1 Handout 29,30,33,34,35

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

area