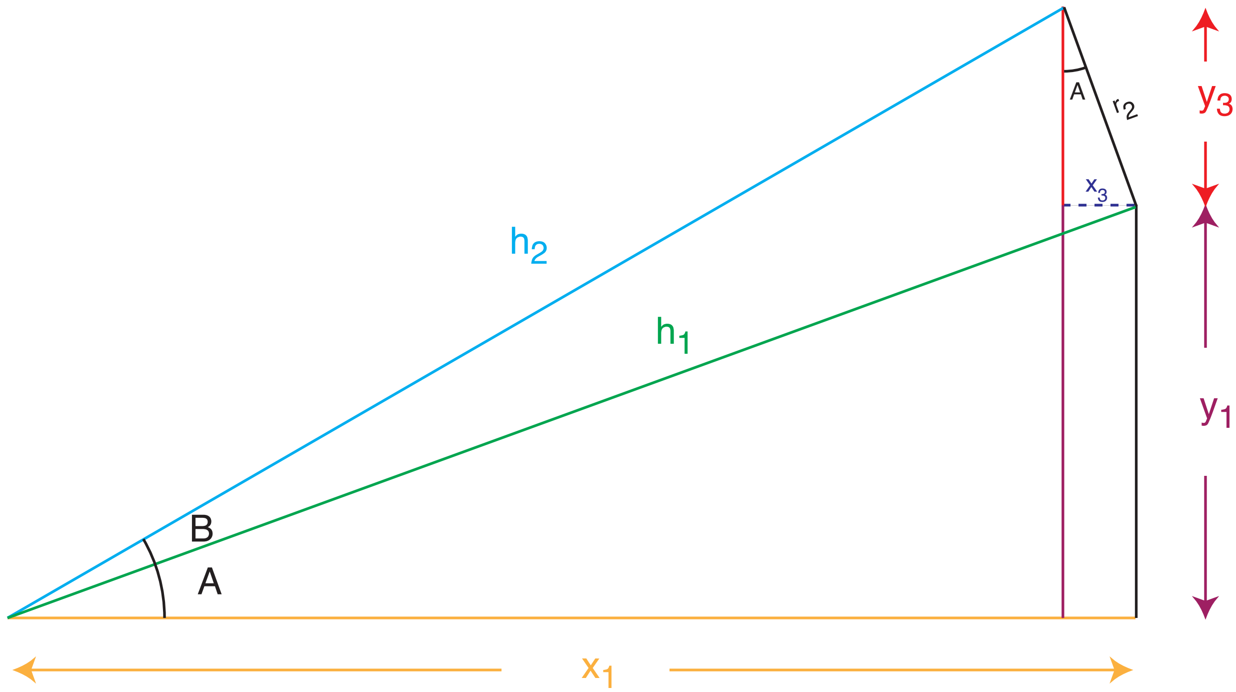


$$\sin(A+B) = \frac{y_1 + y_3}{h_2} = \frac{h_1 \sin A + r_2 \cos A}{h_2} = \frac{h_2 \cos B \sin A + h_2 \sin B \cos A}{h_2}$$

$$\sin(A+B) = \sin A \cos B + \sin B \cos A$$

Note that $\sin(-A) = -\sin(A)$ and that $\cos(-A) = \cos(A)$

to get

$$\sin(A-B) = \sin[A + (-B)] = \sin A \cos B + [(-\sin B)\cos A] = \sin A \cos B - \sin B \cos A$$

$$\cos(A+B) = \frac{x_1 - x_3}{h_2} = \frac{h_1 \cos A - r_2 \sin A}{h_2} = \frac{h_2 \cos B \cos A - h_2 \sin B \sin A}{h_2}$$

$$\cos(A+B) = \cos A \cos B - \sin A \sin B$$

Note that $\sin(-A) = -\sin(A)$ and that $\cos(-A) = \cos(A)$

to get

$$\cos(A-B) = \cos[A + (-B)] = \cos A \cos B - [(-\sin B)\sin A] = \cos A \cos B + \sin A \sin B$$

For the case where $A = B = \theta$

$$\sin 2\theta = 2 \sin\theta \cos\theta$$

$$\cos 2\theta = \cos^2\theta - \sin^2\theta$$