sin(θ) = opposite/hypotenuse

cos(θ) = adjacent/hypotenuse

tan(θ) = opposite/adjacent

csc(θ) = 1/sin(θ)

sec(θ) = 1/cos(θ)

cot(θ) = 1/tan(θ)

$$\sin^2(u) + \cos^2(u) = 1 \qquad 1 + \tan^2(u) = \sec^2(u) \qquad 1 + \cot^2(u) = \csc^2(u)$$

sin(-u) = -sin(u)   sin(π/2-u) = cos(u)

cos(-u) = cos(u)   cos(π/2-u) = sin(u)

tan(-u) = -tan(u)   tan(π/2-u) = cot(u)

$$\sin(\alpha \pm \beta) = \sin(\alpha)\cos(\beta) \pm \cos(\alpha)\sin(\beta)$$

$$\cos(\alpha \pm \beta) = \cos(\alpha)\cos(\beta) \mp \sin(\alpha)\sin(\beta)$$

$$\tan(\alpha \pm \beta) = \frac{\tan(\alpha) \pm \tan(\beta)}{1 \mp \tan(\alpha)\tan(\beta)}$$
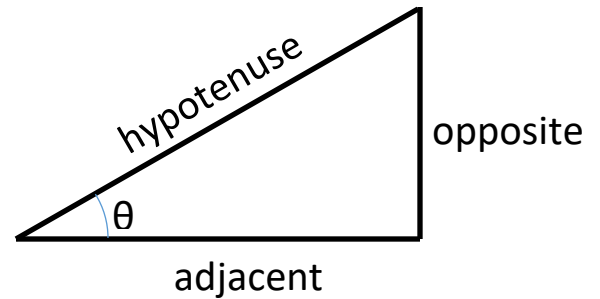
sin(2u) = 2sin(u)cos(u)

$$\cos(2u) = \cos^2(u) - \sin^2(u) \;=\; 2\cos^2(u) - 1 \;=\; 1 - 2\sin^2(u)$$

$$\tan(2u) = 2\tan(u) / (1-\tan^2(u))$$