



November 13

SWBAT:

Use additional trig identities to solve problems

Simplify Trig Expressions



Product-to-Sum Formulas

Sum-to-Product Formulas

Half-Angle Formulas:

Power-Reducing Formulas

Double-Angle Formulas:

Sum and Difference Formulas:

Power-Reducing Formulas

$$\tan^2 u = \frac{1 - \cos 2u}{1 + \cos 2u}$$

Sum and Difference Formulas:

$$\tan(u + v) = \frac{\tan u + \tan v}{1 - \tan u \tan v}$$

$$\tan(u - v) = \frac{\tan u - \tan v}{1 + \tan u \tan v}$$

Double-Angle Formulas:

$$\tan 2u = \frac{2 \tan u}{1 - \tan^2 u}$$

Half-Angle Formulas:

$$\tan\left(\frac{u}{2}\right) = \frac{1 - \cos u}{\sin u}$$

$$\tan\left(\frac{u}{2}\right) = \frac{\sin u}{1 + \cos u}$$

Product-to-Sum Formulas

$$\sin u \sin v = \frac{1}{2} [\cos(u - v) - \cos(u + v)]$$

$$\sin u \cos v = \frac{1}{2} [\sin(u + v) + \sin(u - v)]$$

Sum and Difference Formulas:

$$\sin(u + v) = \sin u \cos v + \cos u \sin v$$

$$\sin(u - v) = \sin u \cos v - \cos u \sin v$$

Sum-to-Product Formulas

$$\sin x + \sin y = 2 \sin\left(\frac{x + y}{2}\right) \cos\left(\frac{x - y}{2}\right)$$

$$\sin x - \sin y = 2 \cos\left(\frac{x + y}{2}\right) \sin\left(\frac{x - y}{2}\right)$$

Half-Angle Formulas:

$$\sin\left(\frac{u}{2}\right) = \pm \sqrt{\frac{1 - \cos u}{2}}$$

Power-Reducing Formulas

$$\sin^2 u = \frac{1 - \cos 2u}{2}$$

Double-Angle Formulas:

$$\sin 2u = 2 \sin u \cos u$$

Product-to-Sum Formulas

$$\cos u \sin v = \frac{1}{2} [\sin(u+v) - \sin(u-v)]$$

$$\cos u \cos v = \frac{1}{2} [\cos(u-v) + \cos(u+v)]$$

Sum and Difference Formulas:

$$\cos(u+v) = \cos u \cos v - \sin u \sin v$$

$$\cos(u-v) = \cos u \cos v + \sin u \sin v$$

Sum-to-Product Formulas

$$\cos x - \cos y = -2 \sin\left(\frac{x+y}{2}\right) \sin\left(\frac{x-y}{2}\right)$$

$$\cos x + \cos y = 2 \cos\left(\frac{x+y}{2}\right) \cos\left(\frac{x-y}{2}\right)$$

Half-Angle Formulas:

$$\cos\left(\frac{u}{2}\right) = \pm \sqrt{\frac{1 + \cos u}{2}}$$

Power-Reducing Formulas

$$\cos^2 u = \frac{1 + \cos 2u}{2}$$

Double-Angle Formulas:

$$\cos 2u = 2 \cos^2 u - 1$$

$$\cos 2u = 1 - \sin^2 u$$

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