

8.2 The Sum and Difference Formulas

OBJECTIVE 1: Understanding the Sum and Difference Formulas for the Cosine Function

The Sum and Difference Formulas for the Cosine Function

$$\cos(\alpha + \beta) = \cos \alpha \cos \beta - \sin \alpha \sin \beta$$

$$\cos(\alpha - \beta) = \cos \alpha \cos \beta + \sin \alpha \sin \beta$$

OBJECTIVE 2: Understanding the Sum and Difference Formulas for the Sine Function

The Sum and Difference Formulas for the Sine Function

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

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

OBJECTIVE 3: Understanding the Sum and Difference Formulas for the Tangent Function

The Sum and Difference Formulas for the Tangent Function

$$\tan(\alpha + \beta) = \frac{\tan \alpha + \tan \beta}{1 - \tan \alpha \tan \beta}$$

$$\tan(\alpha - \beta) = \frac{\tan \alpha - \tan \beta}{1 + \tan \alpha \tan \beta}$$

OBJECTIVE 4: Using the Sum and Difference Formulas to Verify Identities

OBJECTIVE 5: Using the Sum and Difference Formulas to Evaluate Expressions Involving Inverse Trigonometric Functions