Answer Key · Lesson 5.2: The Pythagorean Identities

School Launch · Trigonometry · Unit 5 · Worksheet A · for the parent

Key

1. $\cos x$

Simplify to a single trigonometric function or a constant: $\sin x \cot x$.

2. $\tan^2 x$

Simplify to a single trigonometric function or a constant: $\sin^2 x \sec^2 x$.

3. $\sin x$

Simplify to a single trigonometric function or a constant: $\tan x \cos x$.

4. $\sin x$

1. $1 - \cos^2 x = \sin^2 x$
2. $\dfrac{\sin^2 x}{\sin x} = \sin x$

Simplify to a single trigonometric function or a constant: $\frac{1-\cos^2 x}{\sin x}$.

5. 1

1. $\dfrac{\cos x}{\sin x} \cdot \dfrac{1}{\cos x} \cdot \sin x$
2. Everything cancels: $= 1$

Simplify to a single trigonometric function or a constant: $\cot x \sec x \sin x$.

6. $\cos x$

1. $\dfrac{1}{\cos x} - \sin x \cdot \dfrac{\sin x}{\cos x} = \dfrac{1 - \sin^2 x}{\cos x}$
2. $= \dfrac{\cos^2 x}{\cos x} = \cos x$

Simplify to a single trigonometric function or a constant: $\sec x - \sin x \tan x$.

7. $\cos^2 x$

1. $\dfrac{\cos^2 x}{\sin^2 x} \cdot \sin^2 x$
2. $= \cos^2 x$

Simplify to a single trigonometric function or a constant: $\cot^2 x \sin^2 x$.

8. $\tan x$

1. $\dfrac{1/\cos x}{1/\sin x} = \dfrac{\sin x}{\cos x}$
2. $= \tan x$

Simplify to a single trigonometric function or a constant: $\frac{\sec x}{\csc x}$.

9. $\cos x$

1. $1 - \sin^2 x = \cos^2 x$
2. $\dfrac{\cos^2 x}{\cos x} = \cos x$

Simplify to a single trigonometric function or a constant: $\frac{1-\sin^2 x}{\cos x}$.

10. 1

1. $1 + \tan^2 x = \sec^2 x$
2. So $\sec^2 x - \tan^2 x = 1$

Simplify to a single trigonometric function or a constant: $\sec^2 x - \tan^2 x$.