

Name _____

Date _____

Pythagorean Identities - Guided Lesson Explanation**Explanation # 1**

$$(\sec^2 x - 1) = \tan^2 x$$

$$\cot x = \frac{1}{\tan x}$$

$$(\sec^2 x - 1) (\cot x) =$$

$$(\tan^2 x) \left(\frac{1}{\tan x} \right) = \tan x$$

So, the answer is $\tan x$

Explanation # 2

$$\sin^2 x + \sin^2 x \cot^2 x$$

$$\cot x = \frac{\cos x}{\sin x}$$

$$\sin^2 x + \cancel{\sin^2 x} \frac{\cos^2 x}{\cancel{\sin^2 x}} =$$

$$\sin^2 x + \cos^2 x = 1$$

So, the answer is $\sin^2 x + \cos^2 x = 1$



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Explanation # 3

$$\csc \theta = \frac{7}{6} \rightarrow \sin \theta = \frac{6}{7}$$

$$a^2 + b^2 = c^2$$

$$a^2 + (6)^2 = (7)^2$$

$$a^2 + 36 = 49$$

$$a^2 = 49 - 36$$

$$a^2 = 13$$

$$a = \sqrt{13}$$

$$a = 3.6$$

$$\text{So, the } \cos \theta = \frac{3.6}{7}$$

