

1. SHOW ALL WORK w/ALL reasoning, to prove famous identities, Do NOT use FAMOUS IDENTITIES that came afterwards.

Prove the following identity, or show it is not an identity.

$$\frac{\sec^2 x - \tan^2 x}{2 \sin^2 x + 2 \cos^2 x} = \frac{1}{2}$$

2. SHOW ALL WORK w/ALL reasoning, to prove famous identities, Do NOT use FAMOUS IDENTITIES that came afterwards.

Prove the following identity, or show it is not an identity.

$$\tan(x) = \cot(90^\circ - x)$$

3. SHOW ALL WORK w/ALL reasoning, to prove famous identities, Do NOT use FAMOUS IDENTITIES that came afterwards.

Prove the following identity, or show it is not an identity.

$$\cos(x) = \sin(90^\circ - x)$$

4. SHOW ALL WORK w/ALL reasoning, to prove famous identities, Do NOT use FAMOUS IDENTITIES that came afterwards.

Prove the following identity, or show it is not an identity.

$$\cos(x) = \cos(-x)$$

5. SHOW ALL WORK w/ALL reasoning, to prove famous identities, Do NOT use FAMOUS IDENTITIES that came afterwards.

Prove the following identity, or show it is not an identity.

$$\frac{1 + \tan(x)}{1 + \cot(x)} = \tan(x)$$

6. SHOW ALL WORK w/ALL reasoning, to prove famous identities, Do NOT use FAMOUS IDENTITIES that came afterwards. Prove the following identity. (Do not use itself, or identities that came logically afterwards.)

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

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7. SHOW ALL WORK w/ALL reasoning, to prove famous identities, Do NOT use FAMOUS IDENTITIES that came afterwards. Prove the following identity. (Do not use itself, or identities that came logically afterwards.)

$$1 + \tan^2(\theta) = \sec^2(\theta)$$