What are Trigonometric Identities?

Worksheet

The core Pythagorean identity is sin + cos = 1, true for every angle . It follows directly from the Pythagorean theorem applied to the unit circle.

sin^2(@theta) + cos^2(@theta) = 1

Questions

1. sin + cos equals:
A) 0
B) 1
C)
D) 2

2. 1 + tan equals:
A) sin
B) cos
C) sec
D) csc

3. If sin = 0.6, cos (Q1) is:
A) 0.4
B) 0.6
C) 0.8
D) 1.0

4. sin(2) equals:
A) 2sin
B) 2sincos
C) sin
D) cos sin

5. If sin = 0.6, find cos (in the first quadrant).

6. Simplify sin + cos + 5.

7. If cos = 0.8, find tan using sin from the Pythagorean identity.

8. Define: What is the Pythagorean trig identity?

9. Define: What is 1 + tan equal to?

10. Define: What is 1 + cot equal to?

Answer Key

1. B) 1 - The fundamental Pythagorean identity always equals 1.
2. C) sec - Dividing the Pythagorean identity by cos gives 1 + tan = sec.
3. C) 0.8 - cos = (1 0.36) = 0.64 = 0.8.
4. B) 2sincos - The double-angle identity: sin(2) = 2 sin cos.
5. sin + cos = 1 0.6 + cos = 1 0.36 + cos = 1 cos = 0.64 cos = 0.8
6. sin + cos = 1 (identity) Result = 1 + 5 = 6
7. sin = 1 cos = 1 0.64 = 0.36 sin = 0.6 tan = sin /cos = 0.6/0.8 = 0.75
8. sin + cos = 1, true for all .
9. sec.
10. csc.