

Pre-Calculus 30 Outcome 6a: Assessment 1

30.5	2	3	4
<p>Outcome 6a: I can demonstrate understanding of trigonometric identities including: • reciprocal identities • quotient identities • Pythagorean identities • sum or difference identities (restricted to sine, cosine, and tangent) • double-angle identities (restricted to sine, cosine, and tangent)</p>	<p>I can verify a trig statement for a given value</p> <p>Prove “one step” trig identities algebraically.</p> <p>Determine the exact values of trig ratios using sum, difference and double angle identities.</p> <p>My process is correct, but may make simplifying errors.</p>	<p>I can prove more complicated identities.</p>	<p>I can determine non-permissible values of trig identities.</p> <p>I can prove any trig identity</p>

Level 2:

1) Verify that the equation $\cot \theta \sin \theta = \cos \theta$ is true for $\theta = 30^\circ$

2) Prove the following identities:

a) $\tan \theta \cos \theta = \sin \theta$

b) $\cos^2 \theta + \tan^2 \theta + \sin^2 \theta = \sec^2 \theta$

3) Determine the exact value of each trigonometric expression

a) $\sin 75^\circ$

b) $2 \sin \frac{\pi}{8} \cos \frac{\pi}{8}$

Level 3:

4) Prove any three of the following identities. Be sure to clearly indicate the three questions you want to be marked.

a) $\cos^2 \theta + \cos^2 \theta \tan^2 \theta = 1$

b) $\sec \theta - \cos \theta = \tan \theta \sin \theta$

$$c) \frac{\cos^2\theta}{\sin\theta} + \sin\theta = \csc\theta$$

$$d) \frac{1-\cos\theta}{\sin^2\theta} = \frac{1}{1+\cos\theta}$$

Level 4:

- 5) Phil wants to verify the following trig equation by substituting in an arbitrary value of θ . What value(s) of θ can Phil **not** use to verify this equation?

$$\frac{1}{1-\sin\theta} + \frac{1}{1+\sin\theta} = 2\sec^2\theta$$