Name : _____

Verify - Allied angles

Verify the following.

1) $\cos\left(\frac{\pi}{2} + \theta\right) \sec(-\theta) \tan\left(\frac{3\pi}{2} - \theta\right) = -1$

2) $\frac{\sin(180^0 + \theta)\ c}{\sec(-}$

3) $\cot(270^0 - \theta) +$ $= \cot\theta$

Name : _____

Verify - Allied angles

Verify the following.

4) $\tan(180^0 + \theta) + \tan(90^0 - \theta) = \dfrac{1}{\sin\theta \cos\theta}$

5) $\sin(90^0 - \theta)\csc$

6) $\tan 720^0 - \cos$

Name : _____

Answer key

Sheet 1

Verify - Allied angles

Verify the following.

1) $\cos\left(\frac{\pi}{2}+\theta\right)\sec(-\theta)\tan\left(\frac{3\pi}{2}-\theta\right) = -1$

$= -\sin\theta\sec\theta\cot\theta$ — Using allied angles

$= -\sin\theta\,\frac{1}{\cos\theta}\,\frac{\cos\theta}{\sin\theta}$ — Using reciprocal & quotient identities

$= -\sin\theta\,\frac{1}{\cos\theta}\,\frac{\cos\theta}{\sin\theta}$ — Cancel the common factors

$= -1$

2) $\frac{\sin(180^0+\theta)\,c}{\sec(-}$

$= \frac{-si}{}$ — ed angles

$= \frac{-si}{}$ — otient & reciprocal

$= \frac{-si}{co}$ — e common factors

$= -si$

3) $\cot(270^0-\theta)+$ $= \cot\theta$

$= \tan\theta + \cot\theta + \sin\theta(-\sec\theta)$ — Using allied angles

$= \tan\theta + \cot\theta + \sin\theta\left(-\frac{1}{\cos\theta}\right)$ — Using reciprocal identity

$= \tan\theta + \cot\theta - \tan\theta$ — Using quotient identity

$= \cot\theta$ — Simplify

Name : _____

Answer key

Verify - Allied angles

Verify the following.

4) $\tan(180^0 + \theta) + \tan(90^0 - \theta) = \dfrac{1}{\sin\theta\cos\theta}$

$= \tan\theta + \cot\theta$ — Using allied angles

$= \dfrac{\sin\theta}{\cos\theta} + \dfrac{\cos\theta}{\sin\theta}$ — Using quotient identities

$= \dfrac{\sin^2\theta + \cos^2\theta}{si}$ — e quotients

$= \dfrac{}{\sin}$ — ythagorean identity

5) $\sin(90^0 - \theta)\csc$

$= \cos$ — llied angles

$= \cos$ — eciprocal & quotient es

$= \cos$ — he common factors

$= -1$

6) $\tan 720^0 - \cos 6$

$= \tan 0^0 - (-\cos 90^0) - \sin 30^0 (-\sin 30^0)$ — Using allied angles

$= 0 + 0 - \dfrac{1}{2}\left(-\dfrac{1}{2}\right)$ — Simplify

$= \dfrac{1}{4}$