Pre-Calculus
Formative Ticket #16
Simplifying Rational Expression
Verifying Trigonometric Identities

In Exercises 1-6, use the cofunction identities to fill in the blanks.

1. $\sin 60° = \cos$_____   4. $\cot A = \tan$_____

2. $\sin 45° = \cos$_____   5. $\csc 30° = \sec$_____

3. $\cos x = \sin$_____   6. $\sec B = \csc$_____

In 7 – 9, simplify each rational expression.

7. $\sin x \csc x$ 8. $\tan x \cot x$ 9. $\dfrac{\csc x}{\cot x}$

In 10 – 15, Verify each of the trigonometric identities.

10. $(\sin\Theta + \cos\Theta)^2 + (\sin\Theta - \cos\Theta)^2 = 2$

11. $\dfrac{\sec(-x)\ \cot x}{\csc(-x)} = -1$

12. $\dfrac{1+\sec^2\theta}{\sec^2\theta} = 1 + \cos^2\theta$

13. $\dfrac{\sin\Theta}{\cos\Theta} + \dfrac{\cos\Theta}{\sin\Theta} = \dfrac{1}{\cos\Theta\sin\Theta}$

14. $\sec^2\theta - \sin^2\theta\sec^2\theta = 1$

15. $\dfrac{\sin^2\theta - 2\sin\theta + 1}{\sin\theta - 1} = \sin\theta - 1$