Name: _____   **Panther ID:** _____

Worksheet June 1   Trigonometry   Summer A 2016

1. (a) Use the Euler formula to obtain formulas for $\cos(\alpha - \beta)$ and $\sin(\alpha - \beta)$.

(b) Use the formulas you found in part (a) to find a formula for $\tan(\alpha - \beta)$ in terms of $\tan\alpha$ and $\tan\beta$.

(c) Find the exact value of the expression $\cos(55°)\cos(10°) + \sin(55°)\sin(10°)$.

2. If $\cot\theta = 3$ and θ lies in the 3rd quadrant, find the exact values of $\sin(2\theta)$, $\cos(2\theta)$, $\tan(2\theta)$.

3. (a) Use half-angle formulas to find the exact values of $\sin(22.5°)$, $\cos(22.5°)$, $\tan(22.5°)$.

(b) Use half-angle formulas to find the exact values of $\sin(\frac{5\pi}{8})$, $\cos(\frac{5\pi}{8})$, $\tan(\frac{5\pi}{8})$.

4. Find an identity for $\cos(4\theta)$ in terms of $\cos(\theta)$.