DOUBLE ANGLE IDENTITIES

TEXT: 6.3

LAST NAME	FIRST NAME	DATE

1 (2 points). Prove the identity:

$$\cos(2\alpha) = 2\cos^2(\alpha) - 1$$

2 (2 points). Prove the identity:

$$\tan(2\beta) = \frac{2\tan\beta}{1-\tan^2\beta}$$

Bonus question: for which angles β is this identity valid? (Look at the intersection of domains implied by each expression.)

3 (4 points). Suppose $\sin\eta = 3/8$ and $\pi/2 < \eta < \pi$. Find:

$\cos\eta =$

$\sin(2\eta) =$

$\cos(2\eta) =$

$\tan(2\eta) =$

4 (3 points). Suppose $\tan\phi = 3/2$ and $180^\circ < \phi < 270^\circ$. Find:

$\tan(2\phi) =$

$\cos(2\phi) =$

$\sin(2\phi) =$