Trigonometry **Chapter 4** **Name_____**
Worksheet 4.1

Using the double angle identities find each of the following given $\sin x = \frac{4}{5}$, x is in quadrant one.

1. sin 2x

2. cos 2x

3. tan 2x

Using the double angle identities find each of the following given $\sec x = -\frac{13}{5}$, x is not in quadrant three.

4. sin 2x

5. cos 2x

6. tan 2x

Using the double angle identities find each of the following given $\sin x = \frac{2}{\sqrt{5}}$, x is not in quadrant one.

7. sin 2x

8. cos 2x

9. tan 2x

Verify the identities.

10. $\frac{1-\cos^2 x}{\sin 2x} = \frac{1}{2}\tan x$

11. $\sec 2x = \frac{1}{1-2\sin^2 x}$

12. $\frac{\cot^2 x - 1}{\csc^2 x} = \cos 2x$

13. $\cos 2x = \frac{1-\tan^2 x}{1+\tan^2 x}$

14. $\tan x = \frac{\sin 2x}{1+\cos 2x}$

15. $\sin 2x = \frac{2\tan x}{1+\tan^2 x}$

16. $\sin 2x \cot x = 2 - 2\sin^2 x$

17. $\tan x = \csc 2x - \cot 2x$