Trigonometry Notes
3.3 Circular Functions:
Odd/Even page 135

**Definition:**

An ***even function*** is a function for which
$f(-x) = f(x)$ for all x in the domain of f.

* that is when you replace each original x with –x , you end with exactly the same function as you started with.

An ***odd function*** is a function for which
$f(-x) = -f(x)$ for all x in the domain of f.

*that is when you replace each original x with –x, you end up with exactly the opposite of the function you started with.

Determine whether each of the following is odd, or even, or neither. Show your work!

1) $f(x) = x^{-2}$

2) $f(x) = x^2 + x$

3) $f(x) = x^3 - x$

4) $f(x) = 3x^3 + 2x^2 + 1$

5) $f(x) = x + 1/x$

6) $f(x) = x^4 - 4x^2$

7) $f(x) = x^{-3}$

8) $f(x) = 1 - \sqrt[3]{x}$

***Must memorize:***

The ***cosine*** is an ***even function***. $\cos(-\theta) = \cos(\theta)$
The ***sine*** is an ***odd function*** $\sin(-\theta) = -\sin(\theta)$

Example: Show that the cosecant is an odd function:

Example: Show that the tangent is an odd function.

Example: Prove: $\sin(-\theta)\cot(-\theta) = \cos(\theta)$

Example: Prove: $\cos(-\theta)\tan(\theta) = \sin\theta$