

# Section 1.2

\* Domain: x-values

\* Range: y-values

\* Functions: written as  $f(x)$

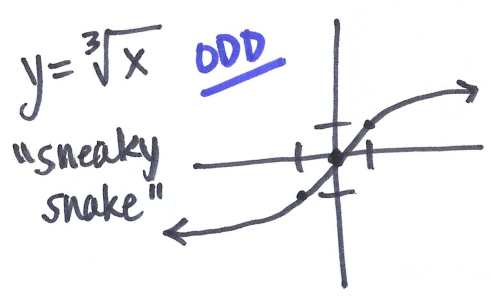
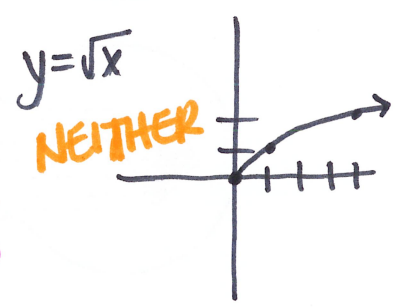
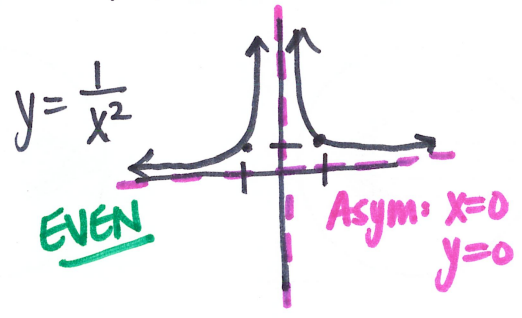
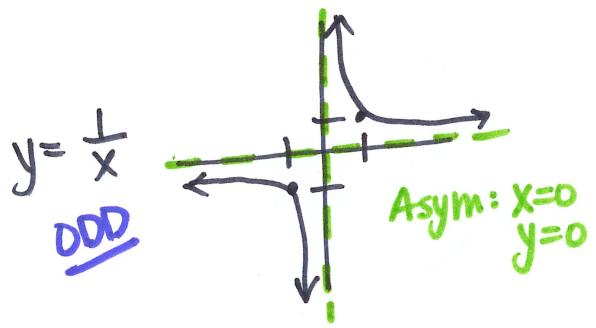
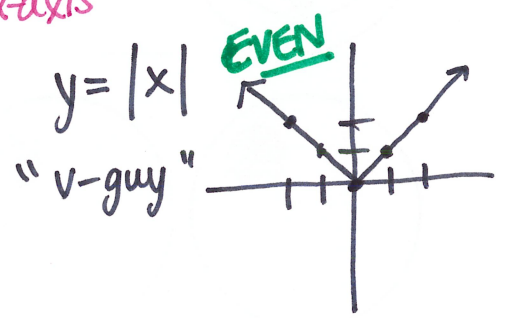
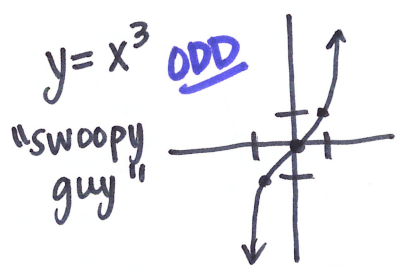
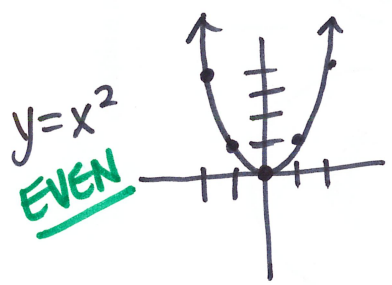
each x-value only has one y-value

perform the vertical line test: draw vert. lines  $\neq$  they can cross the function only ONCE!

\* Interval Notation:  $( ) \rightarrow$  open interval  
does NOT include the end-pts

$[ ] \rightarrow$  closed interval  $\neq$  end-pts are included.

\* Families of Functions:  $y = a(x-b)^n + c$   
 vertical stretch/shrink if "a" is (-), flip over the x-axis  
 moves L/R \* think opposite  
 power  
 moves up/down



\* Odd Function:  $f(-x) = -f(x)$ ; symm to origin  
polynomial must have all ODD exponents  $\neq$  no constants.

\* Even Function:  $f(-x) = f(x)$ ; symm to y-axis  
polynomial must have all EVEN exponents  $\neq$  constants are okay!

Piece-wise Functions: two or more functions put together w/specific domain.

ex: #34

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$$f(x) = \begin{cases} x^2; & x < 0 \\ x^3; & 0 \leq x \leq 1 \\ 2x-1; & x > 1 \end{cases}$$

open circle

x	y = x <sup>2</sup>
0	0
-1	1
-2	4
-3	9

↔

x	y = x <sup>3</sup>
0	0
1/2	1/8
1	1

↔

x	y = 2x-1
1	1
2	3
3	5
4	7

