
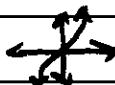


Algebra 3.5 Graphs of Functions

Even Function $f(-x) = f(x)$ $y = x^2$ 

Odd Function $f(-x) = -f(x)$ $y = x^3$ 

Determine whether the following are even, odd or neither

a) $f(x) = 5x^3 + 2x$ b) $f(x) = |x| - 3$ c) $f(x) = 10$

$f(-x) = 5(-x)^3 + 2(-x)$ $f(-x) = |-x| - 3$ $f(-x) = 10$




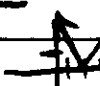

$= -5x^3 - 2x$ (odd) $= |x| - 3$ (even) (even)

d) $f(x) = 3x^2 - 5x + 1$ e) $f(x) = x^4 - 7x^2$ f) $f(x) = x^3 - 2x + 3$





$f(-x) = 3(-x)^2 - 5(-x) + 1$ $f(-x) = (-x)^4 - 7(-x)^2$ $f(-x) = (-x)^3 - 2(-x) + 3$

$3x^2 + 5x + 1$ (neither) $= x^4 - 7x^2$ (even) $-x^3 + 2x + 3$ (neither)



Absolute Value Functions

General Graph: $y = |x|$ 
 Graph: $y = |x| + 3$ 
 Graph: $y = |x| - 5$ shift down 5 
 Graph: $y = |x - 2|$ shift right 2 
 Graph: $y = |x + 4| - 1$ shift left 4, down 1 

Basic Parabola

General Graph: $y = x^2$ 
 $y = x^2 + 6$ shift up 6 units 
 $y = (x - 3)^2$ shift right 3 units 
 $y = (x + 1)^2 - 4$ shift left 1, down 4 

Cubic

General Graph $y = x^3$  $y = -x^3$ 

Alg 3.5

$$f(x) = -x^2 + 5$$



EX If the point $(2, 7)$ is on the graph of f . Find the corresponding point on the graph of the function $y = f(x-1) + 5$ right 1, up 5 $(2, 7) \Rightarrow (3, 12)$

EX If the point $(-2, 3)$ is on the graph of f . Find the corresponding point on the graph of the function $y = -f(x+4) - 1$ left 4, down 1

EX Sketch the graph of $y = -f(x+3) - 1$ given the graph of f below

