

## 2.6 Transformations

Basic / Parent Function :

coefficients are 1 and no other operations.

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

Quadratic

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

cubic

$$f(x) = \sqrt{x}$$

root

$$f(x) = |x|$$

Absolute  
value

# Transformations.

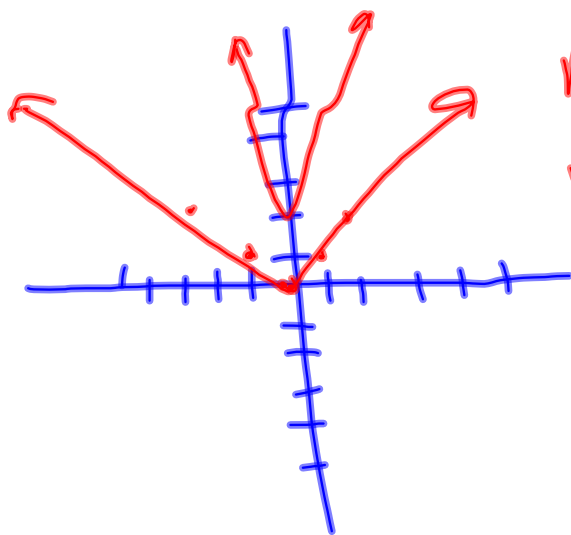
$$f(x) = a \cdot f(x-h) + k$$

↓ ↓ ↓

Stretch      horizontal shift      vertical shift

a is large-skinny  
a is small-wide  
a is negative, a reflection occurs

Ex: Determine the basic  
function and any transformations



Absolute Value  
vertical shift  
stretch

Ex: Find the transformations of:

$$f(x) = 2(x-3)^3 - 1$$

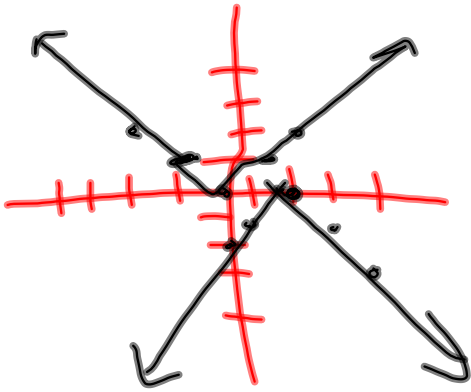
right 3, down 1, stretch by  
a scale factor  
of 2

$$f(x) = -3\sqrt{x} + 2$$

reflection, up 2, stretch by a  
scale factor of 3.

$$\text{Ex: } f(x) = -|x-2|$$

right 2, reflection



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HW: p. 149

2-46 even,  
odds E.C.