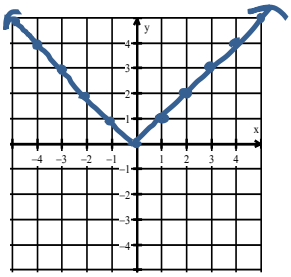
1.1 Introduction to Chapter 1 (Day 2)

OBJ: Identify absolute value transformations and graph absolute value transformations

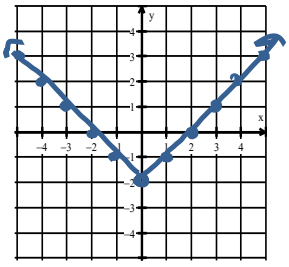
Essential Question: What are the characteristics of absolute value functions?

1. Graph each function. Describe the transformation.

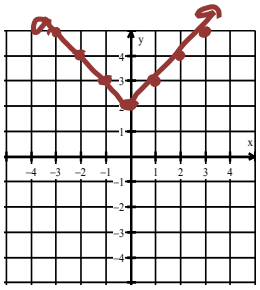
a) $f(x)=|x|$ Absolute Value



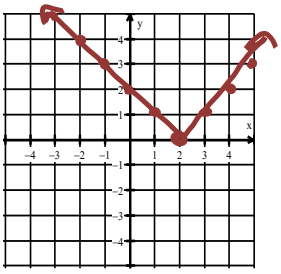
b) $g(x)=|x|-2$ Down 2



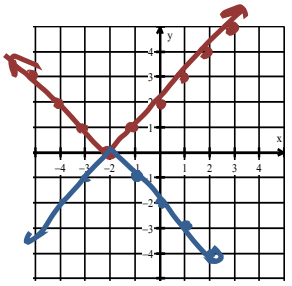
c) $h(x)=|x|+2$ up 2



d) $k(x)=|x-2|$ Right 2



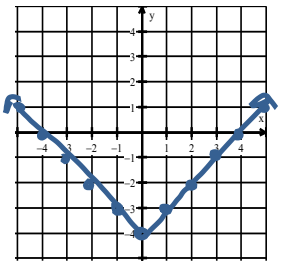
e) $y=|x+2|$ Left 2



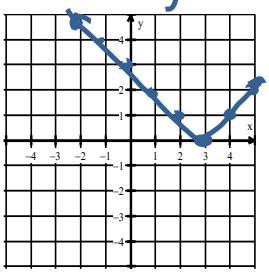
$f(x)=-a|x-h|+k$ ↑↓ ← → reflect through x-axis; left or right; up or down

2. Graph and describe each transformation.

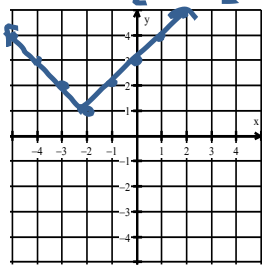
a) $g(x)=|x|-4$ Down 4



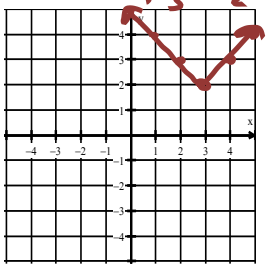
b) $j(x)=|x-3|$ Right 3



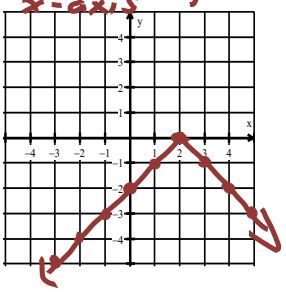
c) $y=|x+2|+1$ Left 2 up 1

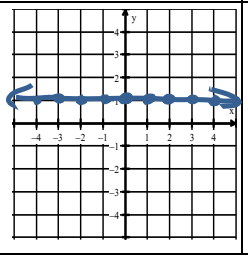
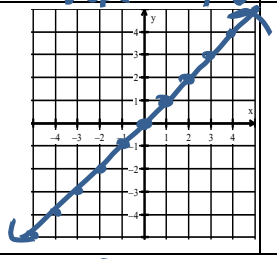
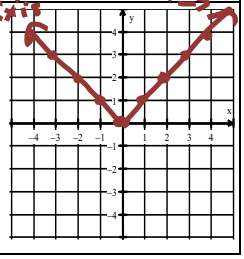


d) $h(x)=|x-3|+2$ Right 3 up 2



e) $k(x)=-|x-2|$ reflect x-axis Right 2

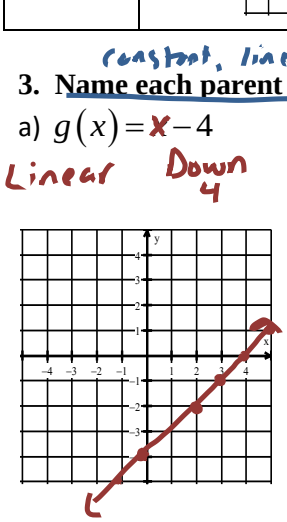


Family	Constant	Linear	Absolute Value
Parent Function	$f(x)=1$	$f(x)=x$	$f(x)=\|x\|$
General Function	$f(x)=a$	$f(x)=ax+b$ reflect x-axis; slope ↑↓	$f(x)=-a\|x-h\|+k$ reflect x-axis ← → ↑↓
Graph			

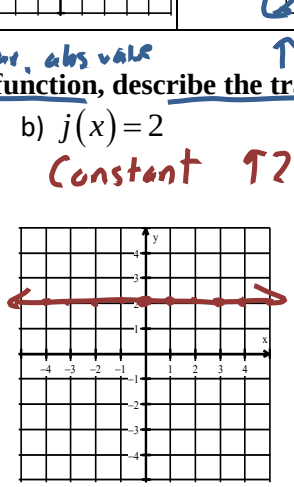
constant, linear, abs value ↑↓ ↔

3. Name each parent function, describe the transformation, and graph.

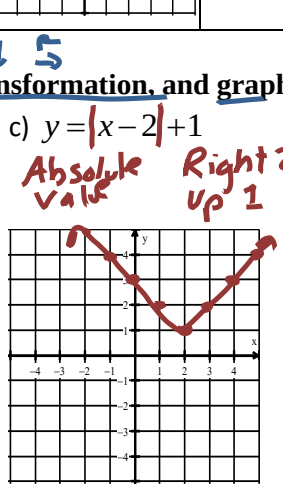
a) $g(x)=x-4$ Linear Down 4



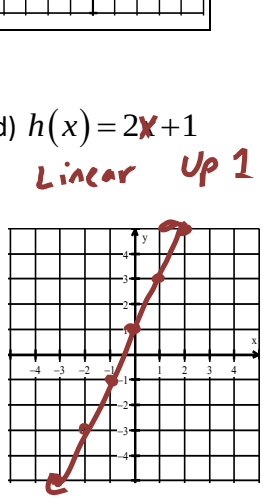
b) $j(x)=2$ Constant ↑2



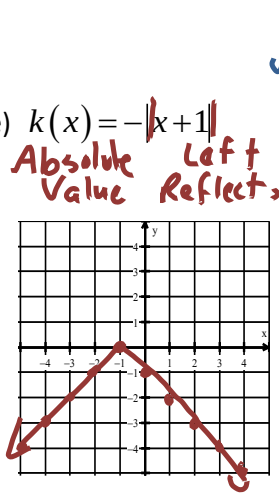
c) $y=|x-2|+1$ Absolute Value Right 2 up 1



d) $h(x)=2x+1$ Linear Up 1



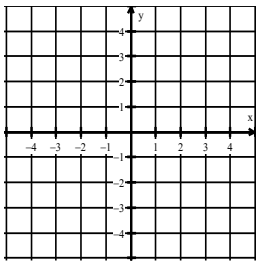
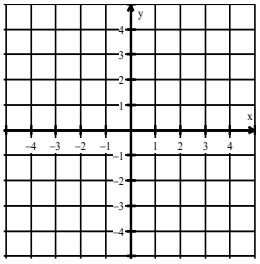
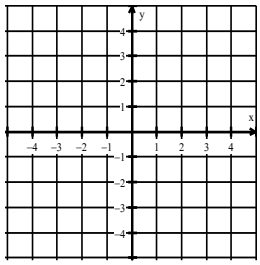
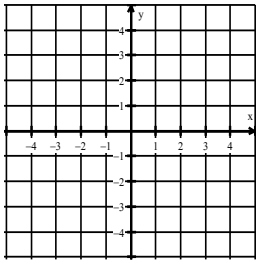
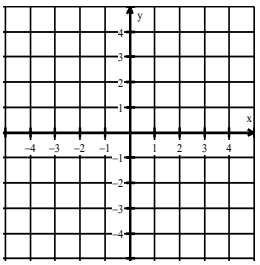
e) $k(x)=-|x+1|$ Absolute Value Left 1 Reflect x-axis



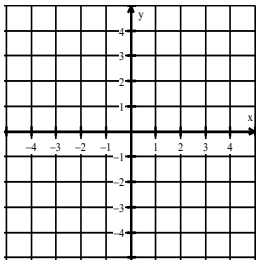
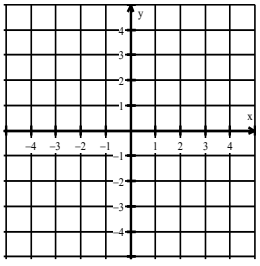
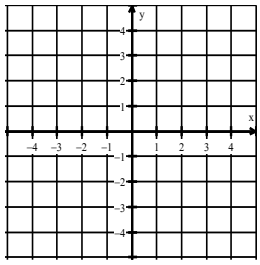
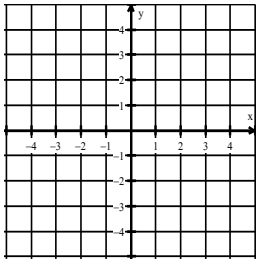
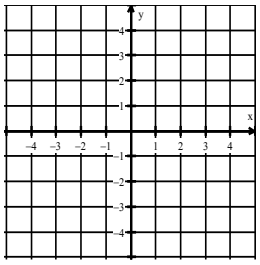
1.1 Intro to Ch.1 HW (Day 1) **Name**_____

1. Name each parent function, describe the transformation, and graph.

a) $g(x)=x+1$ b) $j(x)=-3$ c) $y=|x+3|+2$ d) $h(x)=3x+1$ e) $k(x)=|x-1|$

f) $g(x)=2$ g) $j(x)=-x-3$ h) $y=|x|+1$ i) $h(x)=2x-3$ j) $k(x)=-|x+2|$

2. The total cost C (in dollars) to rent a 14-foot by 20-foot canopy for d days is given by the function $C(d) = 15d + 30$, where the setup fee is \$30 and the charge per day is \$15. The setup fee increases by \$20. The new total cost T is given by the function $T(d) = C(d) + 20$. Describe the transformation from the graph of C to the graph of T.

3. Describe in your own words how the graph of f(x) is related to the graph of f(x)+k? What about f(x-h)?

Warm-UP

Graph $y = |x|$

(Make a table of values)