



Warm Up

Draw the graphs of $y = x^2$, $(x + 2)^2$, and $x^2 + 2$. Describe the similarities and differences between these graphs.

 <ul style="list-style-type: none">• all parabolas• all facing up• x^2 and $x^2 + 2$ are even	 <ul style="list-style-type: none">• vertex for each is different ↳ axis of symmetry• y-intercept is different
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Objective: SWBAT identify and perform transformations of polynomial functions.

Agenda:

- Warm Up
- Transformation Discovery
- Notes
- Practice
- Reflection

HW: Internalize
Transformations #4

Transformation Discovery

Split up the pages amongst your group to complete the discovery (but everyone will fill out the last page).

Transformation Notes $af(x-b)+c$

<i>dilation</i>	$ a > 1$ (greater than 1) when a is MULTIPLIED times the function	$ a < 1$ (less than 1 – usually a fraction or decimal) when a is MULTIPLIED times the function
Change in Graph	Graph is <u>narrower</u>	Graph is <u>wider</u>

<i>reflection</i>	a is POSITIVE	a is NEGATIVE
Change in Graph	Graph opens <u>up</u>	Graph opens <u>down</u>

<i>translation</i>	Inside Function (Parentheses)	Outside Function (Outside Parentheses)
Positive (Addition)	Graph moves <u>left</u> on the <u>x</u> axis	Graph moves <u>up</u> on the <u>y</u> axis
Negative (Subtraction)	Graph moves <u>right</u> on the <u>x</u> axis	Graph moves <u>down</u> on the <u>y</u> axis

Practice

Precalculus pg. 52: #7-14, 20-30, 39

Name the parent function and describe the transformation

Reflection

What are some key differences between horizontal and vertical shifts?

What causes a function to undergo a reflection?

What causes a function to undergo a dilation?