

## **Take some time to prep for your quiz**

- **10 questions**
- **Topics: 0.1, 0.2, 0.3, 0.4**
- **Materials needed:**
  - **calculators**
  - **pencil**
  - **desk**
  - **scrap paper**
  - **CONFIDENT ATTITUDE**

# **QUIZ TIME!**

- **Eyes on your own paper**
- **No headphones**
- **No phones**
- **No electronics of any type**
- **Do your best always**
- **Don't leave any questions blank**

## **1.4 Transformations**

Objective: I can transform parent functions

To **transform** means to...



**change.**

## 1.4 Transformations

$$f(x) = a(bx - c) + d$$

- -b: reflection over the y axis
- -a: reflection over the x axis
- b: horizontal stretch or compression
- a: vertical stretch or shrink
- c: horizontal shift left or right
- d: vertical shift up or down

# 1.4 Transformations. Insides Lie, Outsides Truth!

Transformation	EQUATION	DESCRIPTION	GRAPH
① reflection over y axis	$y = (-x)^3$	• flip over y	
② reflection over x axis	$y = -(x^2)$	• flip over x	
③ multiply by a	$y = 3x^2$ $y = \frac{1}{3}x^2$	• gets taller/stretches if $a=3$ • gets shorter/shrinks if $a=1/3$	
④ multiply (b)	$y = \sin(x)$ $y = \sin(2x)$ $y = \sin(\frac{x}{2})$	• if $b=2$ , speeds up horizontal compression • if $b=1/2$ , slow down horizontal stretch	
⑤ shift c units phase shift	$y = (x-2)^2$ $y = (x+2)^2$	• shift right $\rightarrow$ • shift left $\leftarrow$	
⑥ shift d units vertical displacement	$y = x^2 - 2$ $y = x^2 + 2$	• shift down $\downarrow$ • shift up $\uparrow$	

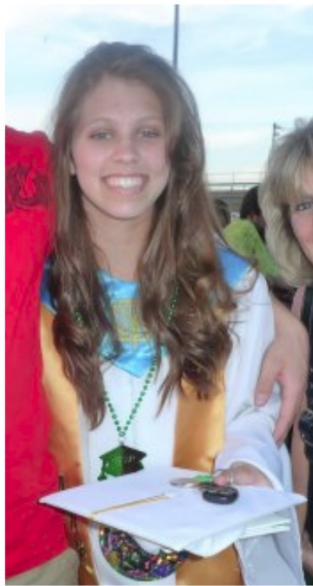
"INSIDES LIE, OUTSIDES TRUTH"

# Transformation Examples

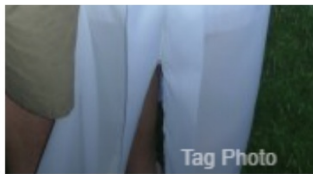
## **Practice**

**FLASHBACK**  
**FRIDAY**





**2009**



**2008**



**2009**