

## What's Going On?

**Checking In**

**Minds on**

$a, k, c, d$  refresher

**Action!**

Transforming Functions

**Consolidation**

Find the x-intercepts

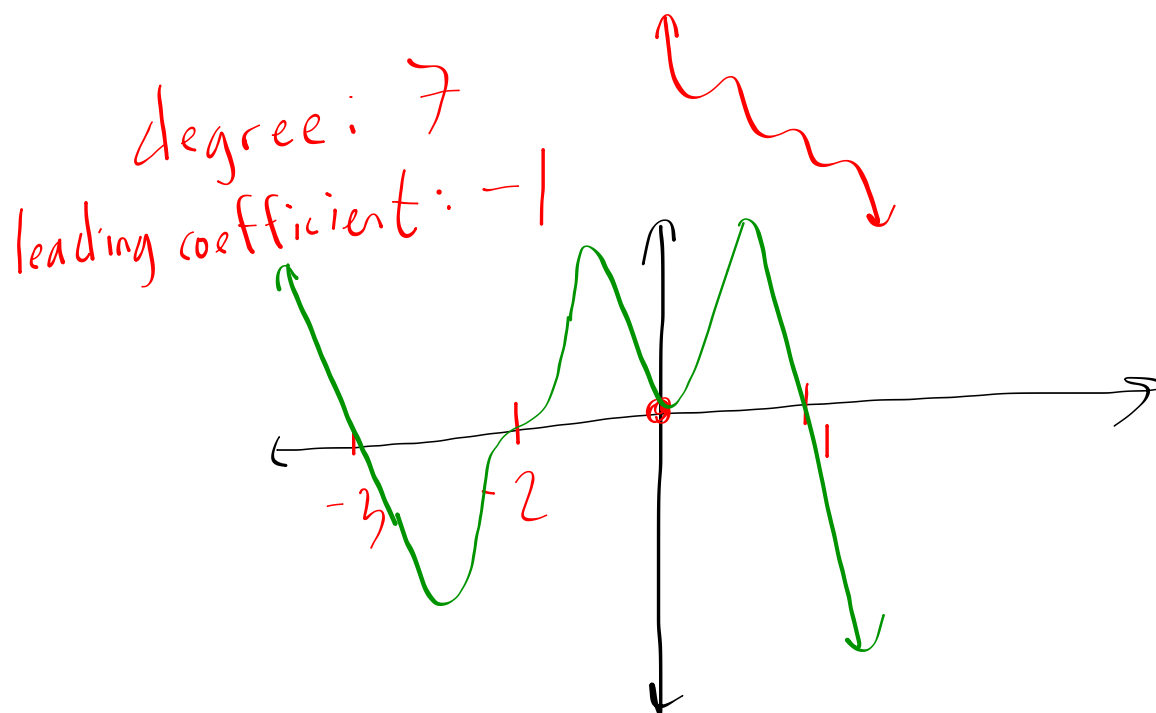
**Learning Goal - I will be able to apply transformations to cubic and quartic functions.**

## Minds on Warm-up Question

whiteboard or scrap paper

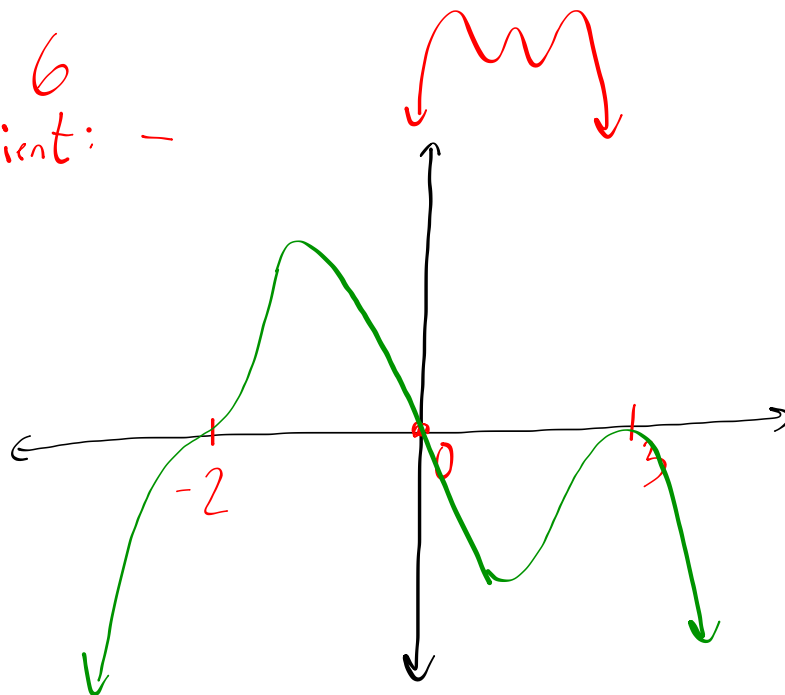
Sketch a rough graph of the function given below

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



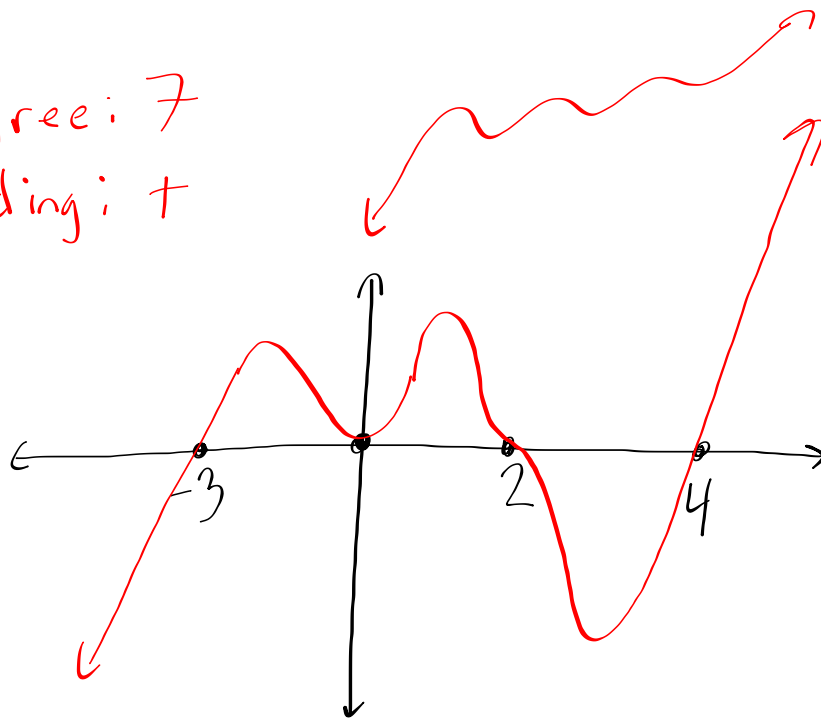
$$f(x) = -2x(x-3)^2(x+2)^3$$

degree: 6  
leading coefficient: -



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

degree: 7  
leading: +



**Action!**

*a, k, c, d* refresher

## Consolidation

# Transforming Functions

Given the table of values below for a cubic function, determine the new coordinates of the points after the function undergoes the transformations in the function  $g(x) = 3(-2(x-4))^3 + 1$ , then graph the function.

$$x^3$$

x	y
-2	-8
-1	-1
0	0
1	1
2	8

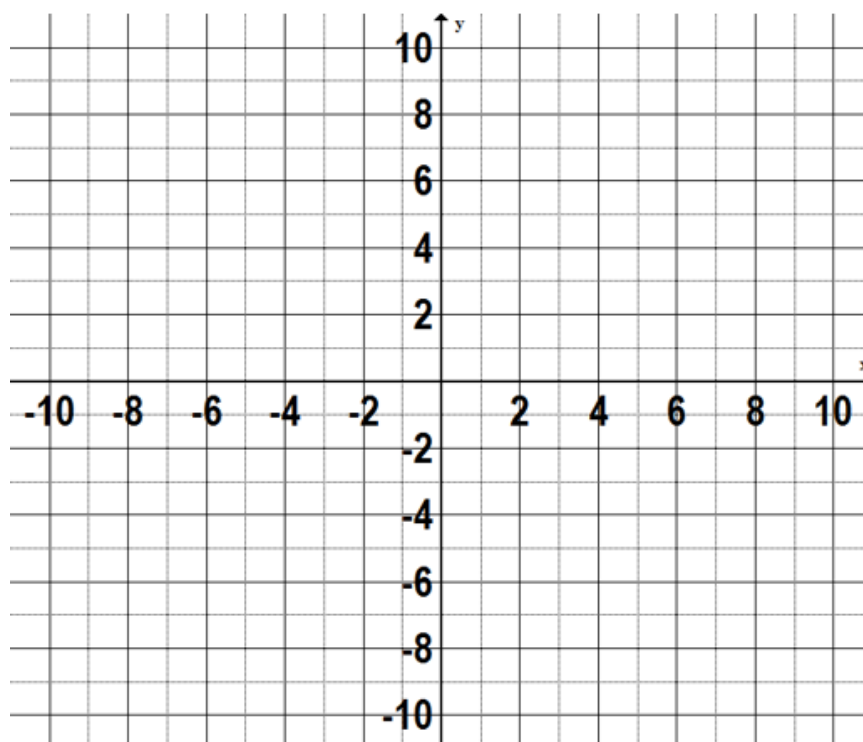
$$h(x) = -\left(\frac{1}{2}(x+3)\right)^3 - 2$$

$x \div \frac{1}{2}$	$y \times -1$
-4	8
-2	1
0	0
2	-1
4	-8

$x-3$	$y-2$
-7	6
-5	-1
-3	-2
-1	-3
1	-10

## Consolidation

# Transforming Functions



## Consolidation

### Transforming Functions

Determine the x-intercepts of the function  $y = 3(x + 6)^4 - 48$ .

**At the x-intercepts  $y = 0$ .**

$$0 = 3(x+6)^4 - 48$$

$+48$ 
 $+48$

$$3(x+6)^4 = 48$$

$$\sqrt[4]{(x+6)^4} = \sqrt[4]{16}$$

$$(x+6) = \pm 2$$

$$x+6 = 2$$

$$x = -4$$

$$x+6 = -2$$

$$x = -8$$



Pg. 155

1, 3, 4, 6, 9