Today's Plan:

Learning Target (standard): I will graph polynomial functions using the 5-step process.

Students will: Complete practice problems over previous concepts at the boards, put up homework problems on the board and make necessary corrections to their own work, take notes over new material and complete practice problems over new concepts.

Teacher will: Provide practice problems over previous concepts, check homework problems for accuracy and provide students feedback, describe and provide examples of new concepts and assign students assessment problems over new concepts.

Assessment: Board work, homework check and homework assignment

Differentiation: Students will work at the board, go over and correct homework at their seats, actively engage in lecture over new concepts, practice new concepts with the aid of other students and the teacher and complete homework assignment.

Go over your homework with someone around you. If there are any questions, please let me know. When you are finished, leave your homework on your desk and please go to the board for practice problems.

For each polynomial, tell the degree, the MTP, the zeros and their multiplicity and whether the graph will cross or touch the x-axis at the zero, and the EB function with the behavior.

$f(x) = -2(4x-1)^3(-x+2)^5$ $-2 \cdot 64x^3 \cdot -x^5$

$128x^8$

degree: 8

MTP: 7

Zeros: $x = \frac{1}{4}$ mult. 3 → crosses x-axis

$x = 2$ mult. 5 → crosses x-axis

EB: $f(x) = 128x^8$

up on left

up on right

Graph using transformations:

$f(x) = -\frac{1}{2}\left(\frac{1}{2}x+2\right)^4 - 3$

parent: $f(x) = x^4$

1) $f(x) = -x^4$ r$_x$

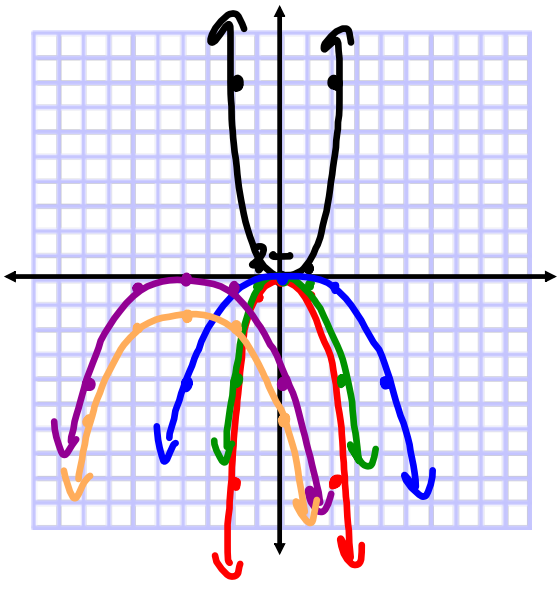
2) $f(x) = -\frac{1}{2}x^4$ v.c. by $\frac{1}{2}$

3) $f(x) = -\frac{1}{2}\left(\frac{1}{2}x\right)^4$ h.s. by 2

4) $f(x) = -\frac{1}{2}\left(\frac{1}{2}(x+4)\right)^4$ shift left 4

5) $f(x) = -\frac{1}{2}\left(\frac{1}{2}x+2\right)^4 - 3$ shift down 3

x	y
-2	16
-1	1
0	0
1	1
2	16



Graph using the 5-step process:

$f(x) = x^2(x-4)(x+1)$ $x^2 \cdot x \cdot x = x^4$

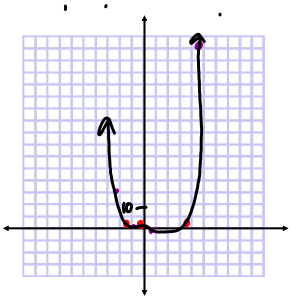
1) degree: 4
MTP: 3
I_x: (0,0), (4,0), (-1,0)
I_y: (0,0)

2) zeros:
x=0 mult 2 → touches x-axis
x=4 mult 1 → crosses x-axis
x=-1 mult. 1 → crosses x-axis

3) EB: $f(x) = x^4$
up on left
up on right

4)

x^2	+	+	0	+	+				
x-4	−	−		−	−	0	+		
x+1	−	0	+	+	+		+		
test	-2	-1	$-\frac{1}{2}$	0	1		4	5	
point	(-2,24)	$(-\frac{1}{2}, -\frac{9}{16})$			(1,-6)			(5,150)	
f(x)	above	below			below			above	



Graph using the 5-step process:

$f(x) = -4x^3 - 8x^2$ $f(x) = -4x^2(x+2)$

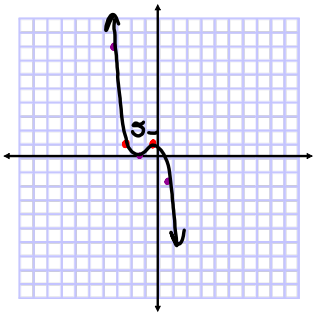
① degree: 3
MTP: 2
I_x: (0,0), (-2,0)
I_y: (0,0)

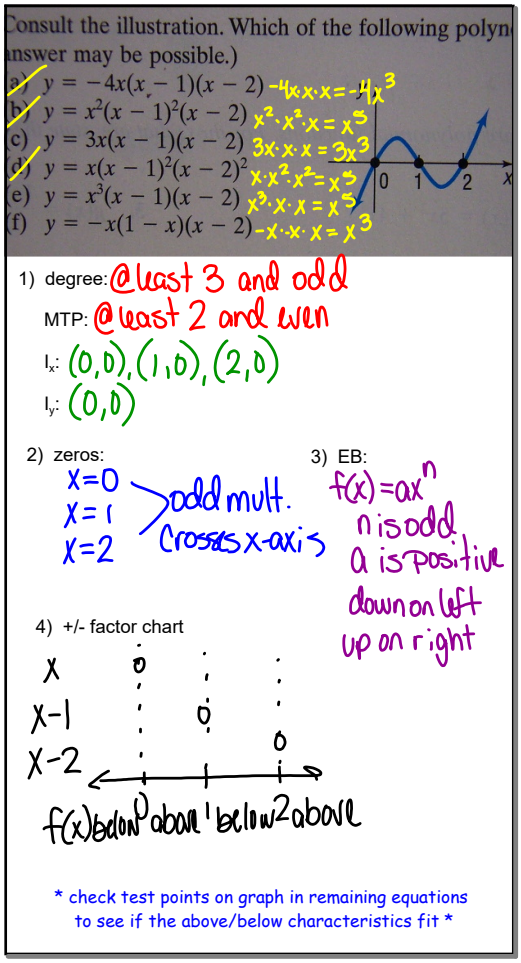
② zeros:
x=0 mult. 2 → touches x-axis
x=-2 mult. 1 → crosses x-axis

③ EB: $f(x) = -4x^3$
up on left
down on right

④

$-4x^2$	−	−	0	−				
x+2	−	0	+	+				
test	-3	-2	-1	0	1			
point	(-3,36)		(-1,-4)		(1,-12)			
f(x)	above		below		below			





Assignment:

p.213 #47, 48, 53 - use the 5-step process

p.213 #56 & 58 - use the example analysis

* draw the graph for these & write the problem

* Quiz on graphing polynomials tomorrow *