Calc A B   9/8/15
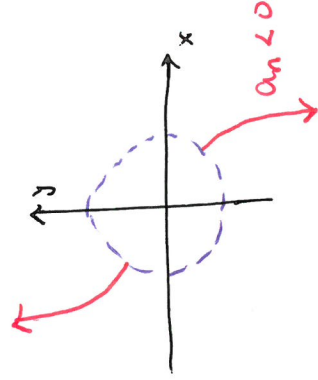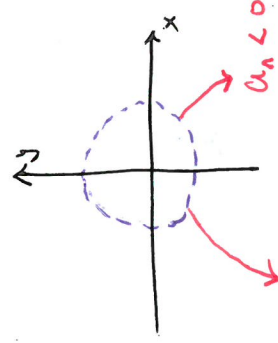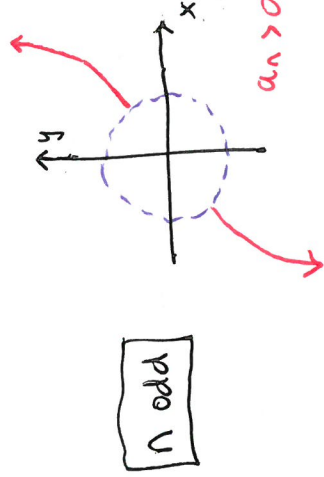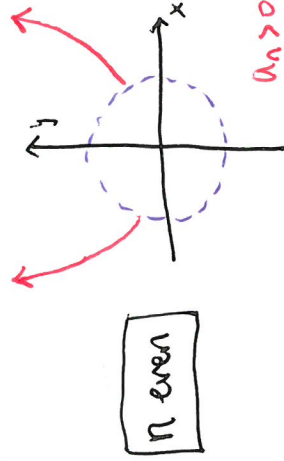
Agenda: 9/8/15
    Lesson 33
    Polynomial Review

★ Quiz back after lesson

• Test Corrections done by today
• Talk with those who haven't given me a parent signature

★ Work on WS or HW 33

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Factors of Polynomial Functions:

• Irreducible factors — never zero

• Real linear factors — zeros

  — Odd multiplicity: graph crosses the x-axis

  — even multiplicity: graph touches but doesn't cross x-axis

End Behavior: $P(x) = a_n x^n + a_{n-1} x^{n-1} + \ldots + a_2 x^2 + a_1 x + a_0$

n even

$a_n > 0$

$a_n < 0$

n odd

$a_n > 0$

$a_n < 0$

Turning Point Theorem: Always have fewer turning points (local min/max) than the degree of a Polynomial.

• Sum of all roots is $-\dfrac{a_{n-1}}{a_n}$ • Average of roots is $\dfrac{-a_{n-1}}{n \cdot a_n} = \overline{X}$

★ n=2, $\overline{X}$ is the x-coord of vertex, for n=3, $\overline{X}$ is the x-coord of inflection point.
   n=4, $\overline{X}$ is the x-coord of center of graph

Lesson 33

Ex. Sketch the following:
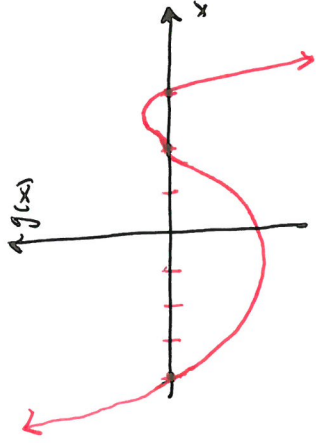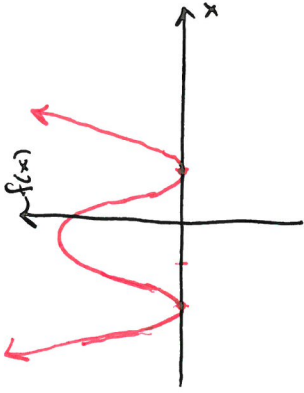
$$f(x) = (x-1)^2(x+2)^2$$

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

$$h(x) = (x+4)(x+2)^4 \underbrace{(x^2+3)}_{\text{irreducible}}(3-x)^3(5-x)^2$$

Degree: $1+4+2+3+2 = 12$

LC: $(-)$ \quad negative leading coef.

EB: ⌢⌣

Don't include y-axis ticks since this is a sketch