Lesson 17 Part 2
10.27.15
4.4
Rational Root Theorem

Rational Root Theorem: *Let* $a_0x^n + a_0x^n a_1x^{n-1} + \cdots a_{n-1}x + a_n = 0$ represent a polynomial equation of degree n with integral coefficients. If a rational number $\frac{p}{q}$, where p and q have no common factors, is a root of a equation, the p is a factor of a_n and q is a factor of a_0.

What does it mean to be rational root?
Are there other types of roots?

I Try:

List the possible rational roots of $-3x + 11x^2 - 2 + 6x^3 = 0$.

Then determine the rational roots.

Put in standard form.	
Identify p and q.	p = 2 q=
Identify the factors for each.	p=$\pm 1, \pm 2$ q=
Identify the possible roots , $\frac{p}{q}$	
Use Synthetic Division to find the roots.	
Keep factoring if possible.	

We Try:
List the possible rational roots of $-x^3 - 6x + 3 + 2x^4 = 0$.
Then determine the rational roots.

Put in standard form.	
Identify p and q.	p = q=
Identify the factors for each.	p= q=
Identify the possible roots , $\frac{p}{q}$	
Use Synthetic Division to find the roots.	
Keep factoring if possible.	

You Try on whiteboards with your partner:
Left Talk, Right Write:

$$Find\ the\ rational\ roots\ of\ x^3 - 7x - 6 = 0$$

Put in standard form.	
Identify p and q.	p = q=
Identify the factors for each.	p= q=
Identify the possible roots , $\frac{p}{q}$	
Use Synthetic Division to find the roots.	
Keep factoring if possible.	

You Try:
Right Talk, Left Write

$$Find\ the\ rational\ roots\ of\ x^3 + 3x^2 + 3x + 1$$

Put in standard form.	
Identify p and q.	p = q=
Identify the factors for each.	p= q=
Identify the possible roots , $\frac{p}{q}$	
Use Synthetic Division to find the roots.	
Keep factoring if possible.	