

Happy Wednesday, October 5th!

Do Now:

Divide the polynomials and decide if the dividend is a factor

Synthetic Division  $(x^3 - 3x^2 + 4x - 7) \div (x - 2)$

What makes this 0?  
 $(x-2)$  is not a factor because  $R \neq 0$

$$\begin{array}{r|rrrrr} 2 & 1 & -3 & 4 & -7 & \\ & \downarrow & 2 & -2 & 4 & \\ \hline & 1 & -1 & 2 & -3 & \end{array}$$

mult  $x^2 - x + 2 + \frac{-3}{x-2}$

Oct 4-9:01 PM

So, what will be on the test?

- 1) Find zeros/solutions of equations (factor and set factors equal to zero, maybe QF)
- 2) Division. Use long or synthetic division to help you find decide if a term is a factor.
- 3) Rational Root Theorem
- 4) Writing Equations from Roots

Oct 4-9:12 PM

Can I tell you a secret?

I want you to be successful.

Standards Based Grading - Learning, Retention

There are more important things than math (yes, even to me). What's more important to you?

cats  
 graduation  
 baseball  
 gatorade  
 graduating  
 culinary  
 family  
 O<sub>2</sub>  
 fun  
 MUSIC  
 friends  
 Health  
 \$

Oct 4-8:53 PM

But in order to do any of these things, **YOU** have to take initiative.

It doesn't matter how much I care if you don't care or you choose to disengage.

You wonder why I don't force you off your phones?

Take charge of your learning, or don't. It really is your choice.

Oct 4-9:07 PM

### Zeros

Roots

Solutions

Definition:  
X-values where poly = 0

### Polynomials

Example:  $x^4 + 3x^2 - 6$

$y = x(x+3)(x-4)$   
 $x = 0$     $x = 4$   
 $x = -3$

May! This is the answer!

$y = x^3 - 25x$

GCF:  $0 = x(x^2 - 25)$   
 $0 = x(x-5)(x+5)$   
 $x = 0$     $x = 5$     $x = -5$

---

$y = 3x^2 + 2x - 4$

$x = \frac{-2 \pm \sqrt{4 - 4(3)(-4)}}{2(3)}$   
 $x = \frac{-2 \pm \sqrt{52}}{6}$

Rational Root Theorem

factors constant

factors of LEAD Co.

### Finding Zeros

On a Graph

$x = -2, 0, 3$

From an Equation

- 1) Is it factored? \_\_\_\_\_
- 2) Is it factorable? \_\_\_\_\_
- 3) Did you try Quadratic Formula? \_\_\_\_\_
- 4) Rational Root Theorem always gets you close! \_\_\_\_\_
- 5) Use Division to help you find factors

Types

It is a factor when...

long / synthetic

No Remainder

Oct 4-9:10 PM

## Writing Equations

$x = 4, 2i$

$(x-4)(x-2i)(x+2i)$

$(x^2 - 4i^2)$

$(x-4)(x^2+4)$

$y = x^3 + 4x - 4x^2 - 16$

Oct 5-10:53 AM

$$P(x) = x^3 - 2x + 7$$

$$P(1) = 1^3 - 2(1) + 7$$

$$= 1 - 2 + 7 = 6$$

$$P(3) = 3^3 - 2(3) + 7$$

Oct 5-10:57 AM

Rat. Root Thm

Find all possible roots

$$y = 14x^4 - 6x^3 + 7x - 5$$

All possible:

$$\pm 1, \pm 5$$

$$\pm 7, \pm 2, \pm 14, \pm 1$$

$$\pm \frac{1}{7}, \pm \frac{1}{2}, \pm \frac{1}{14}, \pm 1, \pm \frac{5}{7}, \pm \frac{5}{2}, \pm \frac{5}{14}, \pm 5$$

Oct 5-10:58 AM

Exit Slip:

Write down one (serious) thing you will do to study for tomorrow.

Homework: Look at solutions to review and try practice problems.

Oct 4-9:05 PM