No clickers & yes calculators.

Have out the 3.9 w.s. to correct.

Do the chapter 3.7 - 3.10 review from the brown table.

Apr 25-9:39 AM

$$x^2 - 16 = 0$$
$$+16 \quad +16$$
$$\sqrt{x^2} = \sqrt{16}$$
$$x = +4$$
$$\quad\ -4$$

$$x^4 - 16 = 0$$
$$+16 \quad +16$$
$$\sqrt{x^4} = \sqrt{16}$$
$$\sqrt{x^2} = \sqrt{4}$$
$$x = -2$$
$$x = 2 \quad \text{Real Zeros}$$
$$\sqrt{x^2} = \sqrt{-4}$$
$$x = 2i$$
$$\quad -2i$$
$$2 \text{ complex imaginary}$$

Algebra 2 – Section 3-10
Finding Zeros of Polynomial Functions

Oct 28-12:00 PM

$$x^4 - 81 = 0$$
$$+81 \quad +81$$
$$\sqrt{x^4} = \sqrt{81}$$
$$\sqrt{x^2} = \sqrt{9} \qquad x = \pm 3 \text{ Real}$$
$$\sqrt{x^2} = \sqrt{-9} \qquad x = \pm 3i \text{ Complex}$$

$$\frac{16x^4}{16} = \frac{1}{16}$$
$$\sqrt{x^4} = \sqrt{\frac{1}{16}}$$
$$\sqrt{x^2} = \sqrt{\frac{1}{4}} \qquad \sqrt{x^2} = \sqrt{-\frac{1}{4}}$$
$$x = \pm\frac{1}{2} \qquad x = \pm\frac{1}{2}i$$

Apr 25-2:27 PM

Graphing polynomials with repeated zeros
- Graph $f(x) = (x - 1)(x - 2)(x - 3)(x - 4)$
- What are the zeros? $x = 1 \ x = 2 \ x = 3 \ x = 4$
- What happens to the graph at those zeros? Crosses the x-axis
- Graph $f(x) = (x - 1)^2(x - 2)(x - 3)$
- What are the zeros? $x = 1 \quad x = 2 \ x = 3$
- What happens to the graph at those zeros? Bounces BACK at x=1   Go through the x-axis
- Graph $f(x) = (x - 1)^3(x - 2)$
- What are the zeros? $x = 1 \ x = 2$
- What happens to the graph at those zeros? Go through x-axis
- Graph $f(x) = (x - 1)^4$
- What are the zeros? 1
- What happens to the graph at those zeros? Bounces Back

Oct 28-12:00 PM

Generalizations about functions, graphs and Rational Zeros

$$x^2 - 2 = 0$$
$$+2 \quad +2$$
$$\sqrt{x^2} = \sqrt{2}$$
$$x = \sqrt{2} \quad +, -\sqrt{2}$$

Finding the exact value of Irrational Zeros and Imaginary Zeros.

$$x = 2 \quad 2 \text{ Real}$$
$$x = -2$$
$$2 \text{ imaginary}$$
$$x = 2i \quad \sqrt{x^2} = \sqrt{-4}$$
$$x = -2i \quad \sqrt{x^2} = \sqrt{-4}$$

$$x^4 - 16 = 0 \quad \sqrt{x^4} = \sqrt{16}$$

Oct 28-12:00 PM

$$x^4 - 81 = 0$$
$$+81 \quad +81$$
$$\sqrt{x^4} = \sqrt{81} \qquad x^2 = \pm 9 \quad *$$
$$\sqrt{x^2} = \sqrt{9} \qquad x = \begin{array}{c} +3 \\ -3 \end{array} \bigg\} \begin{array}{c} 2 \text{ Real} \\ \text{zeros} \end{array}$$
$$\sqrt{x^2} = \sqrt{-9} \quad x = \begin{array}{c} 3i \\ -3i \end{array} \bigg\} \begin{array}{c} 2 \text{ imaginary} \\ \text{solutions} \end{array}$$

Apr 25-11:14 AM

$$16x^4 - 1 = 0$$
$$+1 \quad +1$$
$$\frac{16x^4}{16} = \frac{1}{16}$$
$$\sqrt{x^4} = \sqrt{\frac{1}{16}}$$
$$\sqrt{x^2} = \sqrt{\frac{1}{4}}$$
$$\sqrt{x^2} = \sqrt{\frac{1}{4}}$$

Apr 25-11:23 AM

No clickers & yes calculators.

Have out the 3-10 notes to complete.

Apr 25-11:32 AM

Finding all the zeros of a function

- $F(x) = x^3 - x^2 - 8x + 12$

- How many zeros? **3**
- How many show on the graph?
- What are they? $x = -3$ $x = 2$
- Are any duplicates that you see? **yes**
- Are any of them irrational?

- Use synthetic division to test for multiples of 3 or 4 if you are short zeros. **Decimal**

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

Oct 28-12:00 PM

Finding all the zeros of a function

- $F(x) = x^3 - x^2 - 2x + 2$ $x = -6.41$ $x = 1.41$

- How many zeros? **3**
- How many show on the graph? **3** What are the? $x = 1$
- Are any duplicates that you see? **NO**
- Are any irrational? **yes** We can't use them as decimals!

- Use synthetic division to find the irrational or imaginary zeros.

$$1 \underline{\quad| 1 \;\; -1 \;\; -2 \;\; 2}$$

$$\begin{array}{c} x^2 \; | \;\; x^1 \;\; x^0 \;\; -2 \\ 1 \;\; 0 \;\; -2 \;\; \boxed{0} \end{array}$$

$$x^2 - 2 = 0 \quad \sqrt{x^2} = \sqrt{2}$$
$$+2 \quad +2 \quad x = +\sqrt{2}$$
$$x = -\sqrt{2}$$

$$f(x) = (x - \sqrt{2})(x + \sqrt{2})(x - 1)$$

Oct 28-12:00 PM

Finding all the zeros of a function

- $F(x) = x^3 - x^2 - 7x + 7$ $x = -2.65$ $x = 1$ $x = 2.65$

- How many zeros? **3**
- How many show on the graph? **3** What are the?
- Are any duplicates that you see? **NO**
- Are any irrational? **yes** We can't use them as decimals!

- Use synthetic division to find the irrational or imaginary zeros.

$$1 \underline{\quad| 1 \;\; -1 \;\; -7 \;\; 7}$$
$$\begin{array}{c} \quad\quad 1 \;\; 0 \;\; -7 \\ \overline{1 \;\; 0 \;\; -7 \;\; 0} \end{array}$$

$$x^2 - 7 = 0$$
$$+7 \; +7$$
$$\sqrt{x^2} = \sqrt{7}$$
$$x = +\sqrt{7}$$
$$x = -\sqrt{7}$$

$$f(x) = (x - 1)(x - \sqrt{7})(x + \sqrt{7})$$

Oct 28-12:00 PM

Finding all the zeros of a function

- $F(x) = x^4 - 256$

- How many zeros?
- How many show on the graph? What are the?
- Are any duplicates that you see?
- Are any irrational? We can't use them as decimals!

- Use synthetic division to find the irrational or imaginary zeros.

$$x^4 = 256$$

Oct 28-12:00 PM

Writing the factors if the Zero is a Fraction

- You can't leave fractions (or decimals) in the parentheses.
- The denominator becomes the coefficient.

- $(x - \frac{1}{2})$

- $(x - \frac{3}{4})$

- $(x + \frac{1}{4})$

Oct 28-12:00 PM

$$x^4 - 7x^2 + 10$$

$$(x^2 - 5)(x^2 - 2)$$

$$x^2 - 5 = 0$$

$$x = \sqrt{5} \quad x = -\sqrt{5}$$

$$x = \sqrt{2}$$
$$x = -\sqrt{2}$$

$$F(x) = (x + \sqrt{5})(x - \sqrt{5})(x - \sqrt{2})(x + \sqrt{2})$$

Apr 26-10:51 AM

① Pg 119 (Pick 6)

② Review is Done

Apr 26-11:03 AM

Apr 26-2:03 PM