

Algebra II 2: A Deeper Understanding Of Equations

Week 1: **Polynomial Division**

- Dividing polynomials with no remainder
- Dividing polynomials with a remainder

https://www.youtube.com/watch?v=RPXMBIFG_W4

<https://tutorial.math.lamar.edu/classes/alg/dividingpolynomials.aspx>

Week 2: **Remainder Theorem**

- Proof of the remainder theorem
- Using the remainder theorem by definition
- Checking factors using the remainder theorem

<https://www.youtube.com/watch?v=bvxbC3W9trw>

<https://www.khanacademy.org/math/algebra2/x2ec2f6f830c9fb89:poly-div/x2ec2f6f830c9fb89:remainder-theorem/v/polynomial-remainder-theorem-proof>

Week 3: **Zeros of Polynomials**

- Finding zeros of polynomials (already factored)
- Finding zeros of polynomials (by factoring)

<https://www.khanacademy.org/math/algebra2/x2ec2f6f830c9fb89:poly-graphs/x2ec2f6f830c9fb89:poly-zeros/v/polynomial-zeros-grouping?modal=1>

<https://www.khanacademy.org/math/algebra2/x2ec2f6f830c9fb89:poly-graphs/x2ec2f6f830c9fb89:poly-zeros/v/polynomial-zeros-common-factor?modal=1>

Week 4: **Analyzing Intervals of a Polynomial**

- Positive and negative intervals
- Multiplicity

<https://www.khanacademy.org/math/algebra2/x2ec2f6f830c9fb89:poly-graphs/x2ec2f6f830c9fb89:poly-intervals/a/positive-and-negative-intervals-of-polynomials?modal=1>

<https://www.khanacademy.org/math/algebra2/x2ec2f6f830c9fb89:poly-graphs/x2ec2f6f830c9fb89:poly-intervals/a/zeros-of-polynomials-and-their-graphs?modal=1>

Week 5: **End Behavior of a Polynomial**

- Meaning of different end behaviors
- Calculating end behavior as x goes to infinity

<https://www.khanacademy.org/math/algebra2/x2ec2f6f830c9fb89:poly-graphs/x2ec2f6f830c9fb89:poly-end-behavior/a/end-behavior-of-polynomials?modal=1>

<https://www.khanacademy.org/math/algebra2/x2ec2f6f830c9fb89:poly-graphs/x2ec2f6f830c9fb89:poly-end-behavior/v/polynomial-end-behavior?modal=1>

Week 6: **Fractional Exponents**

- Rewrite roots as a fractional exponent
- Solving exponential equations with a rational answer

<https://www.khanacademy.org/math/algebra2/x2ec2f6f830c9fb89:exp/x2ec2f6f830c9fb89:rational-exp/v/solving-for-a-fractional-exponent?modal=1>

Week 7: **Properties of Rational Exponents**

- Rewrite exponential expressions and mixed radicals
- Rewriting quotient of powers

Week 8: **Evaluating Exponents and Radicals**

- Evaluate a variety of radical expressions

<https://www.khanacademy.org/math/algebra2/x2ec2f6f830c9fb89:exp/x2ec2f6f830c9fb89:eval-exp-rad/v/simplifying-with-exponent-properties?modal=1>

Week 9: **Solving Equations Using Exponent Properties**

- Solve a variety of equations using exponent properties
- <https://www.khanacademy.org/math/algebra2/x2ec2f6f830c9fb89:exp/x2ec2f6f830c9fb89:exp-eq-prop/v/solving-exponential-equations-with-exponent-properties-advanced?modal=1>

Week 10: **Rate of change using exponential models**

- Analyze time and change in exponential problems
- Write exponential rate of change equations

<https://www.khanacademy.org/math/algebra2/x2ec2f6f830c9fb89:exp-model/x2ec2f6f830c9fb89:exp-change/v/interpreting-change-in-exponential-models?modal=1>

<https://www.khanacademy.org/math/algebra2/x2ec2f6f830c9fb89:exp-model/x2ec2f6f830c9fb89:exp-change/v/interpreting-time-in-exponential-models?modal=1>

Week 11: **More exponential models**

- Half life problems
- Percent change problems

Week 12: **Wrap up and Review**