

Algebra II 3: Equations on a Coordinate System

Week 1: **Logarithms**

- Intro to logarithms
- Relationship between exponents and logarithms

<https://www.youtube.com/watch?v=EvQCLCaig2U>

Week 2: **Natural log**

- Intro to e
- Evaluating ln functions with a calculator

Week 3: **Logarithmic Properties**

- Product Rule
- Power rule
- Proofs of logarithmic properties

<https://www.khanacademy.org/math/algebra2/x2ec2f6f830c9fb89:logs/x2ec2f6f830c9fb89:log-properties/a/properties-of-logarithms>

Week 4: **Change of Base of Logarithmic Functions**

- Change of base formula
- Using the change of base
- Proof of the change of base rule

<https://www.youtube.com/watch?v=pZqDXF-hA18>

Week 5: **Solving Exponential Equations Using Logs**

- Base 10 log equations
- Base e log equations
- Base 2 log equations

<https://www.youtube.com/watch?v=rBnQiLa2TYo>

Week 6: **Shifting Functions**

- Intro to graph transformations
- Shifting a function graphically
- Reflecting functions

Week 7: **Even and Odd Functions**

- Intro to even and odd functions
- Recognizing even and odd functions graphically
- Even and odd functions from equation

<https://www.youtube.com/watch?v=8VgmBe3ulb8>

<https://www.youtube.com/watch?v=3o6EVhO0n2U>

Week 8: **Scaling Functions**

- Scaling functions vertically
- Scaling functions horizontally
- Identifying function transformations

<https://www.khanacademy.org/math/algebra2/x2ec2f6f830c9fb89:transformations/x2ec2f6f830c9fb89:trans-all-together/v/shifting-and-reflecting-functions?modal=1>

Week 9: **Graphs of Various Functions**

- Graphs of square root functions
- Graphs of Cube root functions
- Graphs of exponential functions
- Transforming these graphs

<https://www.khanacademy.org/math/algebra2/x2ec2f6f830c9fb89:transformations/x2ec2f6f830c9fb89:radical-graphs/a/match-the-formula-of-a-radical-function-to-its-graph?modal=1>

<https://www.khanacademy.org/math/algebra2/x2ec2f6f830c9fb89:transformations/x2ec2f6f830c9fb89:exp-graphs/v/graphing-exponential-functions-interactive?modal=1>

<https://www.khanacademy.org/math/algebra2/x2ec2f6f830c9fb89:transformations/x2ec2f6f830c9fb89:exp-graphs/v/transforming-exponential-graphs?modal=1>

Week 10: **Rational Equations**

- Intro to rational equations
- Finding the inverse of an equation
- Solving square root equations

Week 11: **Extraneous Solutions**

- Intro to extraneous solutions
- Equations that have specific extraneous solutions
- Solving for extraneous solutions

<https://www.khanacademy.org/math/algebra2/x2ec2f6f830c9fb89:eq/x2ec2f6f830c9fb89:extraneous-sol/v/extraneous-solutions>

Week 12: **Wrap Up and Review**

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<https://www.khanacademy.org/math/algebra2>