

Secondary V

Foundations of Algebra

Topic	Video/Notes
Origins of algebra	https://youtu.be/_LDR1_Prveo
The beauty of algebra	https://youtu.be/kpCJyQ2usJ4
What is a variable?	https://youtu.be/tHYis-DP0oU
Evaluating an expression with one variable	https://youtu.be/AJNDeVt9UOo
Evaluating expressions with two variables	https://youtu.be/S_OX3ByvBSc
Evaluating expressions with two variables: fractions & decimals	https://youtu.be/GmD7Czmo10k
Introduction to combining like terms	https://youtu.be/CLWpkv6ccpA
Simplifying expressions	https://youtu.be/3NHSwiv_pSE
Combining like terms: challenge problem	https://youtu.be/FNmseBlvaY
Simplifying expressions with rational numbers	https://youtu.be/rtNuo7R3scY
Equivalent expressions	https://youtu.be/rHNY01R2Vsq
Why dividing by zero is undefined	https://youtu.be/SQzjzStU1RQ
Undefined & indeterminate expressions	https://youtu.be/lHdIHtsXbZg

Equations and Inequalities

Topic	Video/Notes
Linear equations	https://youtu.be/1c5HY3z4k8M
Equation with fractions	https://youtu.be/PL9UYj2awDc
Equation with the variable in the denominator	https://youtu.be/Z7C69xP08d8
Equations with parentheses	https://youtu.be/YZBStgZGyDY
Equation with no solutions	https://youtu.be/uQs100shv-A
Equation with infinitely many solutions	https://youtu.be/Dq0xFgQB9qo
Inequalities with variables on both sides	https://youtu.be/SgKBBUFaGb4
Inequalities with variables on both sides	https://youtu.be/XOAn5z8mkvl
Compound inequalities: OR	https://youtu.be/0YErXSShF0A

Topic	Video/Notes
Compound inequalities: AND	https://youtu.be/d2cnQ5ahHgE
A compound inequality with no solution	https://youtu.be/ZF_cZ-GX9PI
Double inequalities	https://youtu.be/cvB8b4AACyE
Compound inequalities: review	https://www.khanacademy.org/math/algebra/x2f8bb11595b61c86:solve-equations-inequalities/x2f8bb11595b61c86:compound-inequalities/a/compound-inequalities-review?modal=1
Introduction to two-variable linear equations	https://youtu.be/AOxMJRtoR2A
Solutions to two-variable equations	https://youtu.be/qk69pR91R00
Example: solutions to two-variable equations	https://youtu.be/d3VMo1VWFvc
Introduction to slope	https://youtu.be/MeU-KzdCBps
Positive & negative slope	https://youtu.be/EQoNfxToez0
Example: slope from graph	https://youtu.be/R948Tsyq4vA
Graphing a line given point and slope	https://youtu.be/5mgH-_5UJ54
Example: slope from two points	https://youtu.be/WkspBxrzuZo
Slope: review	https://www.khanacademy.org/math/algebra/x2f8bb11595b61c86:linear-equations-graphs/x2f8bb11595b61c86:slope/a/slope-review?modal=1
Slope of a horizontal line	https://youtu.be/CFShq099Mx0
Horizontal & vertical lines	https://youtu.be/J43C1bKpdWc
Introduction to intercepts	https://youtu.be/LNSB0N6esPU
x -intercept of a line	https://youtu.be/xilQQNufFuU
Intercepts from an equation	https://youtu.be/xGmef7IFc5w
Intercepts of lines review (x -intercepts and y -intercepts)	https://www.khanacademy.org/math/algebra/x2f8bb11595b61c86:linear-equations-graphs/x2f8bb11595b61c86:x-intercepts-and-y-intercepts/a/intercepts-of-lines-review-x-intercepts-and-y-intercepts?modal=1
Linear functions word problem: fuel	https://youtu.be/AAmVITyDXbc
Introduction to slope-intercept form	https://youtu.be/IL3UCuXrUzE
Introduction to slope-intercept form: notes	https://www.khanacademy.org/math/algebra/x2f8bb11595b61c86:forms-of-linear-equations/x2f8bb11595b61c86:intro-to-slope-intercept-form/a/introduction-to-slope-intercept-form?modal=1

Topic	Video/Notes
Slope and y-intercept from equation	https://youtu.be/Z65mz__8DQ0
Examples: slope-intercept	https://youtu.be/qgsNNqmlLoA
Linear equation: word problems	https://youtu.be/w6R8rywmgek
Graph from slope-intercept equation	https://youtu.be/uk7gS3cZVp4
Graphing lines from slope-intercept form: review	https://www.khanacademy.org/math/algebra/x2f8bb11595b61c86:forms-of-linear-equations/x2f8bb11595b61c86:graphing-slope-intercept-equations/a/graphing-lines-review?modal=1
Slope-intercept equation from graph	https://youtu.be/9wOalujeZf4
Writing slope-intercept equations	https://www.khanacademy.org/math/algebra/x2f8bb11595b61c86:forms-of-linear-equations/x2f8bb11595b61c86:writing-slope-intercept-equations/a/writing-slope-intercept-equations?modal=1
Slope-intercept equation from slope & point	https://youtu.be/AqFwKecNaTk
Slope-intercept equation from two points	https://youtu.be/XMJ72mtMn4Y
Constructing linear equations from context	https://youtu.be/hBpl9lfmMKg
Slope-intercept form: review	https://www.khanacademy.org/math/algebra/x2f8bb11595b61c86:forms-of-linear-equations/x2f8bb11595b61c86:writing-slope-intercept-equations/a/slope-intercept-form-review?modal=1
Introduction to point-slope form	https://youtu.be/K_OI9LA54AA
Point-slope & slope-intercept equations	https://youtu.be/LtpXvUCrgrM
Point-slope form: review	https://www.khanacademy.org/math/algebra/x2f8bb11595b61c86:forms-of-linear-equations/x2f8bb11595b61c86:point-slope-form/a/point-slope-form-review?modal=1
Introduction to linear equation standard form	https://youtu.be/6CFE60iP2Ug
Graphing a linear equation: $5x + 2y = 20$	https://youtu.be/86NwKBcOlow
Converting from slope-intercept to standard form	https://youtu.be/XOIhNVeLfwS
Forms of linear equations: review	https://www.khanacademy.org/math/algebra/x2f8bb11595b61c86:forms-of-linear-equations/x2f8bb11595b61c86:summary-forms-of-two-variable-linear-equations/a/forms-of-linear-equations-review?modal=1

Functions

Topic	Video/Notes
What is a function?	https://youtu.be/kvGslo1TmsM
Example: Evaluating functions	https://youtu.be/ld6UovYjd-M
Example: Evaluating functions from graph	https://youtu.be/kzYtx_AqzjM
Evaluating discrete functions	https://youtu.be/Ddw8u7nNmKs
Example: evaluating expressions with function notation	https://youtu.be/uaPm3Tpuxbc
Example: matching an input to a function's output (equation)	https://youtu.be/tJBQZ3PUkPo
Example: matching an input to a function's output (graph)	https://youtu.be/0Rmmynff5Yc
Example: two inputs with the same output (graph)	https://youtu.be/qSktOkaW6EA
Equations vs. functions	https://youtu.be/l3iXON1xEC4
Obtaining a function from an equation	https://youtu.be/OOim0QPsJ9o
Function notation word problem: bank	https://youtu.be/HERb3x0aw6c
Function notation word problem: beach	https://youtu.be/94Gnto5G1PU
Intervals and interval notation	https://youtu.be/UJQkqV2zGv0
What is the domain of a function?	https://youtu.be/-DTMakGDZAw
What is the range of a function?	https://youtu.be/96uHMchWD2E
Example: domain and range from graph	https://youtu.be/sXP7VhU1gYE
Determining whether values are in domain of function	https://youtu.be/LdbrNNheFg8
Examples: finding the domain of functions	https://youtu.be/4ZWbeESjv4M
Recognizing functions from graph	https://youtu.be/qGmJ4F3b5W8
Does a vertical line represent a function?	https://youtu.be/_npwsLh0vws
Recognizing functions from table	https://youtu.be/5cK86VKoBPw
Introduction to minimum and maximum points	https://youtu.be/Hoyv3-BMAGc
Example: absolute and relative extrema	https://youtu.be/xmrhZ5ySaD0
Increasing, decreasing, positive or negative intervals	https://youtu.be/KxOp3s9ottg
Example: positive & negative intervals	https://youtu.be/eDv7dk9uNmM

Topic	Video/Notes
Graph interpretation word problem: temperature	https://youtu.be/VtBRkjRua0I
Introduction to average rate of change	https://youtu.be/oT6LclcJ-l8
Example: average rate of change from graph	https://youtu.be/TEXSW-o8674
Example: average rate of change from table	https://youtu.be/U1lQbh21y1k
Average rate of change word problem: graph	https://youtu.be/-6EqUILZ1yw
Average rate of change: review	https://www.khanacademy.org/math/algebra/x2f8bb11595b61c86:functions/x2f8bb11595b61c86:average-rate-of-change-word-problems/a/average-rate-of-change-review?modal=1
Introduction to inverse functions	https://youtu.be/W84lObmOp8M
Introduction to inverse functions: notes	https://www.khanacademy.org/math/algebra/x2f8bb11595b61c86:functions/x2f8bb11595b61c86:inverse-functions-intro/a/intro-to-inverse-functions?modal=1
Inputs & outputs of inverse functions	https://youtu.be/KzaPBzFFLRM
Graphing the inverse of a linear function	https://youtu.be/KPeS2gdizhQ
Finding inverse functions: linear	https://youtu.be/wSiamij_i_k
Introduction to composing functions	https://youtu.be/wUNWjd4bMmw
Introduction to composing functions: notes	https://www.khanacademy.org/math/prec calculus/x9e81a4f98389efdf:composite/x9e81a4f98389efdf:composing/a/introduction-to-function-composition?modal=1
Composing functions	https://www.khanacademy.org/math/prec calculus/x9e81a4f98389efdf:composite/x9e81a4f98389efdf:composing/a/finding-and-evaluating-composite-functions?modal=1
Evaluating composite functions	https://youtu.be/lxtlwnCV-HM
Evaluating composite functions: using tables	https://youtu.be/FR8JH6lldsE
Evaluating composite functions: using graphs	https://youtu.be/oORnGaJp1pk
Finding composite functions	https://youtu.be/_b-2rZpX5z4
Evaluating composite functions: advanced	https://youtu.be/jlID_mIJXi4
Example 1: Modeling with composite functions	https://youtu.be/pIMfRbznxKA
Example 2: Modeling with composite functions	https://youtu.be/LG6g7gxupHg
Verifying inverse functions by composition	https://youtu.be/8GEGnSEJA2s

Topic	Video/Notes
Verifying inverse functions by composition: notes	https://www.khanacademy.org/math/prec calculus/x9e81a4f98389efdf:composite/x9e81a4f98389efdf:verifying-inverse/a/verifying-inverse-functions-by-composition?modal=1
Verifying inverse functions by composition: not inverse	https://www.khanacademy.org/math/prec calculus/x9e81a4f98389efdf:composite
Introduction to piecewise functions	https://youtu.be/tedzsRH0Jas
Example: evaluating piecewise functions	https://youtu.be/hg2HR9zJFq4
Example: graphing piecewise functions	https://youtu.be/PQiXRrT_14o
Example: domain & range of step function	https://youtu.be/4n7TlvRHuD5
Example: domain & range of piecewise linear functions	https://youtu.be/rpl-X9Gn5a4
Shifting functions: introduction	https://youtu.be/RttvubuBhAE
Shifting functions: examples	https://youtu.be/MDav5OMpCto
Graphing shifted functions	https://youtu.be/5DLkB-g8Rr8
Reflecting functions: introduction	https://youtu.be/mR2y_kohZlw
Examples: Reflecting functions	https://youtu.be/0QOnEoQHZ1k
Function symmetry: introduction	https://youtu.be/4dOQePLgqxE
Function symmetry: introduction, notes	https://www.khanacademy.org/math/algebra2/x2ec2f6f830c9fb89:transformations/x2ec2f6f830c9fb89:symmetry/a/intro-to-symmetry-of-functions?modal=1
Even and odd functions: Graphs	https://youtu.be/zltgXTIUVLw
Even and odd functions: Tables	https://youtu.be/eKwJJUM_d0
Even and odd functions: Equations	https://youtu.be/fTeO-V_VgEc
Even and odd functions: Find the mistake	https://youtu.be/RAksvTJWgxo
Symmetry of polynomials	https://www.khanacademy.org/math/algebra2/x2ec2f6f830c9fb89:transformations/x2ec2f6f830c9fb89:symmetry/a/symmetry-of-polynomials?modal=1
Scaling functions: introduction	https://youtu.be/1It6a77OmLU
Examples: Scaling functions vertically	https://youtu.be/tRCEBtKLqEw
Example: Scaling functions horizontally	https://youtu.be/npMMbXm9sR0
Identifying horizontal squash from graph	https://youtu.be/4H5JZnytOfE
Identifying function transformations	https://youtu.be/ENFNyNPYfZU

Topic	Video/Notes
Graphing square and cube root functions	https://youtu.be/PI6IV7K3DbM
Radical functions & their 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
Example 1: Transforming exponential graphs	https://youtu.be/83gM3ufe1Nw
Example 2: Transforming exponential graphs	https://youtu.be/ja4WRZ4DrAw
Graphing exponential functions	https://youtu.be/vISEpdWf2hQ
Graphical relationship between 2^x and $\log_2 x$	https://youtu.be/K_PiPfYxtao
Example 1: Graphing logarithmic functions	https://youtu.be/GpBSbNoon1E
Example 2: Graphing logarithmic functions	https://youtu.be/f_BJC6UwDTE

Exponents and Logarithms

Topic	Video/Notes
Multiplying & dividing powers: integer exponents	https://youtu.be/CZ5ne_mX5_I
Powers of products & quotients: integer exponents	https://youtu.be/dC1ojsMi1yU
Introduction to square roots	https://youtu.be/mbc3_e5IWw0
Understanding square roots	https://youtu.be/ROIfbUQrSY4
Square root of decimal	https://youtu.be/tRHLEWSUjrQ
Introduction to cube roots	https://youtu.be/87_qlofPwhg
5th roots	https://youtu.be/8wrtyW1RwNk
Higher order roots	https://www.khanacademy.org/math/algebra/x2f8bb11595b61c86:rational-exponents-radicals/x2f8bb11595b61c86:radicals/a/higher-order-roots?modal=1
Simplifying square roots	https://youtu.be/cw3mp8oNASK
Simplifying square roots: variables	https://youtu.be/qFFhdLIX220
Simplifying square-root expressions	https://youtu.be/3MijXB91DVo
Simplifying square roots: review	https://www.khanacademy.org/math/algebra/x2f8bb11595b61c86:rational-exponents-radicals/x2f8bb11595b61c86:simplifying-square-roots/a/simplifying-square-roots-review?modal=1

Topic	Video/Notes
Introduction to exponential functions	https://youtu.be/6WMZ7J0wwMI
Graphing exponential function	https://youtu.be/9SOSfRNCQZQ
Exponential vs. linear growth	https://youtu.be/_vIXdx-CqM0
Exponential expressions word problems: numerical	https://youtu.be/L70UJVjc-bc
Exponential expressions word problems: algebraic	https://youtu.be/Z3YVZzCEi_A
Graphs of exponential growth	https://youtu.be/6rX2VNYbXEE
Introduction to exponential decay	https://youtu.be/v4lIdaXvyE7U
Graphing exponential growth & decay	https://youtu.be/RVv0Jgi3Pbw
Writing exponential functions	https://youtu.be/UgLfAb_aFt4
Writing exponential functions from tables	https://youtu.be/Qst1UVtq8pE
Writing exponential functions from graphs	https://youtu.be/gFdh_rE2XgU
Modeling with basic exponential functions word problem	https://youtu.be/2iZXFd_ZImA
Linear vs. exponential growth: from data	https://youtu.be/721RrH6auoU
Introduction to logarithms	https://youtu.be/Z5myJ8dg_rM
Introduction to logarithms: notes	https://www.khanacademy.org/math/algebra2/x2ec2f6f830c9fb89:logs/x2ec2f6f830c9fb89:log-intro/a/intro-to-logarithms?modal=1
Evaluating logarithms: advanced	https://youtu.be/eTWCARmrzJ0
Relationship between exponentials & logarithms	https://youtu.be/Obch1OP5QyA
Relationship between exponentials & logarithms: graphs	https://youtu.be/DhW9pz5Vfwo
Relationship between exponentials & logarithms: tables	https://youtu.be/lz6lVf8frjw
e and compound interest	https://youtu.be/BKGx8GMVu88
e as a limit	https://youtu.be/oQhp3ndj28Y
Evaluating natural logarithm with calculator	https://youtu.be/Dpo_-GrMpNE
Introduction to logarithm properties: part 1	https://youtu.be/PupNgv49_WY
Introduction to logarithm properties: part 2	https://youtu.be/TMmxKZaCqe0

Topic	Video/Notes
Introduction to logarithm properties: review	https://www.khanacademy.org/math/algebra2/x2ec2f6f830c9fb89:logs
Using the logarithmic product rule	https://youtu.be/pkGrXzakRFs
Using the logarithmic power rule	https://youtu.be/Pb9V374iOas
Using the properties of logarithms: multiple steps	https://youtu.be/RhzXX5PbsuQ
Proof of the logarithm product rule	https://youtu.be/FP2arCfAfBY
Proof of the logarithm quotient and power rules	https://youtu.be/yEAXG_D1HDw
Justifying the logarithm properties	https://www.khanacademy.org/math/algebra2/x2ec2f6f830c9fb89:logs/x2ec2f6f830c9fb89:log-prop/a/justifying-the-logarithm-properties?modal=1
Evaluating logarithms: change of base rule	https://youtu.be/OkFdDqW9xxM
Logarithm change of base rule: notes	https://www.khanacademy.org/math/algebra2/x2ec2f6f830c9fb89:logs/x2ec2f6f830c9fb89:change-of-base/a/logarithm-change-of-base-rule-intro?modal=1
Using the logarithm change of base rule	https://youtu.be/qtsMgdZ98Yg
Proof of the logarithm change of base rule	https://youtu.be/1rebIXFIM6l
Logarithm properties: review	https://www.khanacademy.org/math/algebra2/x2ec2f6f830c9fb89:logs/x2ec2f6f830c9fb89:change-of-base/a/logarithm-properties-review?modal=1
Solving exponential equations using logarithms: base-10	https://youtu.be/R443Db-wJ5o
Solving exponential equations using logarithms	https://www.khanacademy.org/math/algebra2/x2ec2f6f830c9fb89:logs/x2ec2f6f830c9fb89:exp-eq-log/a/solving-exponential-equations-with-logarithms?modal=1
Solving exponential equations using logarithms: base-2	https://youtu.be/7lg6kVZaWoU
Exponential model word problem: medication dissolve	https://youtu.be/HnHCQ2X_meg
Exponential model word problem: bacteria growth	https://youtu.be/lpXL9HIkqUQ

Quadratics

Topic	Video/Notes
Introduction to Polynomials	https://youtu.be/Vm7H0VTllco
Multiplying binomials	https://youtu.be/ZMLFFtX615w
Special products of the form $(x - a)(x + a)$	https://youtu.be/JfuisfEdnjK
Squaring binomials of the form $(x + a)^2$	https://youtu.be/xH_GllPuymc
Special products of the form $(ax - b)(ax + b)$	https://youtu.be/h6HmHjkA034
Squaring binomials of the form $(ax + b)^2$	https://youtu.be/xjkbR7Gjgs
Binomial special products: review	https://www.khanacademy.org/math/algebra/x2f8bb11595b61c86:quadratics-multiplying-factoring/x2f8bb11595b61c86:special-product-binomials/a/binomial-special-products-review?modal=1
Introduction to factors & divisibility	https://youtu.be/SjN3_xCJamA
Factoring quadratics as $(x + a)(x + b)$	https://youtu.be/D3a8NnpQ2vU
Example 1: factoring quadratics: leading coefficient = 1	https://www.khanacademy.org/math/algebra/x2f8bb11595b61c86:quadratics-multiplying-factoring/x2f8bb11595b61c86:factor-quadratics-intro/a/factoring-quadratics-leading-coefficient-1?modal=1
Example 2: factoring quadratics as $(x + a)(x + b)$	https://youtu.be/1kfq0aR3ASs
More examples of factoring quadratics as $(x + a)(x + b)$	https://youtu.be/eF6zYNzIZKQ
Factoring simple quadratics: review	https://www.khanacademy.org/math/algebra/x2f8bb11595b61c86:quadratics-multiplying-factoring/x2f8bb11595b61c86:factor-quadratics-intro/a/factoring-simple-quadratics-review?modal=1
Introduction to grouping	https://youtu.be/X7B_tH4O-_s
Factoring by grouping	https://www.khanacademy.org/math/algebra/x2f8bb11595b61c86:quadratics-multiplying-factoring/x2f8bb11595b61c86:factor-quadratics-grouping/a/factoring-by-grouping?modal=1
Factoring quadratics by grouping	https://youtu.be/u1SAo2GiX8A

Topic	Video/Notes
Factoring quadratics: leading coefficient $\neq 1$	https://www.khanacademy.org/math/algebra/x2f8bb11595b61c86:quadratics-multiplying-factoring/x2f8bb11595b61c86:factor-quadratics-grouping/a/factoring-quadratics-leading-coefficient-not-1?modal=1
Factoring quadratics: common factor + grouping	https://youtu.be/R-rhSQzFJL0
Factoring quadratics: negative common factor + grouping	https://youtu.be/d-2Lcp0QKfl
Introduction to difference of squares	https://youtu.be/HLNSouzygw0
Factoring quadratics: difference of squares	https://www.khanacademy.org/math/algebra/x2f8bb11595b61c86:quadratics-multiplying-factoring/x2f8bb11595b61c86:factor-difference-squares/a/factoring-quadratics-difference-of-squares?modal=1
Factoring difference of squares: leading coefficient $\neq 1$	https://youtu.be/jmbg-DKWuc4
Factoring difference of squares: analyzing factorization	https://www.khanacademy.org/math/algebra/x2f8bb11595b61c86:quadratics-multiplying-factoring/x2f8bb11595b61c86:factor-difference-squares/v/equivalent-expressions-to-differences-of-squares?modal=1
Factoring difference of squares: shared factors	https://youtu.be/xYQR2LNZLeU
Introduction to perfect square factorization	https://youtu.be/JX5Zvh6swmo
Factoring quadratics: perfect squares	https://www.khanacademy.org/math/algebra/x2f8bb11595b61c86:quadratics-multiplying-factoring/x2f8bb11595b61c86:factor-perfect-squares/a/factoring-quadratics-perfect-squares?modal=1
Factoring perfect squares	https://youtu.be/liRNTieIU_k
Identifying perfect square form	https://youtu.be/4STGvuoBi5U
Factoring perfect squares: negative common factor	https://youtu.be/XuwldEyWjH0
Factoring perfect squares: missing values	https://youtu.be/olsIHjWJHEY
Factoring perfect squares: shared factors	https://youtu.be/6jZZ6EeE-j0
Strategy in factoring quadratics: part 1	https://youtu.be/2hHyY1eyHQs
Strategy in factoring quadratics: part 2	https://youtu.be/ahPdiNQGXRa
Factoring quadratics in any form	https://www.khanacademy.org/math/algebra/x2f8bb11595b61c86:quadratics-multiplying-factoring/x2f8bb11595b61c86:factor-quadratics-strategy/a/factoring-quadratics-in-any-form?modal=1

Topic	Video/Notes
Introduction to parabolas	https://youtu.be/BGz3pkoGPag
Graphing quadratics in factored form	https://youtu.be/EV57jv7JKCs
Quadratic word problems: factored form	https://youtu.be/xVZA6NOQA7A
Solving quadratics by taking square roots	https://youtu.be/RweAgQwLdMs
Solving quadratics by taking square roots: notes	https://www.khanacademy.org/math/algebra/x2f8bb11595b61c86:quadratic-functions-equations/x2f8bb11595b61c86:untitled-1082/a/solving-quadratic-equations-by-taking-square-roots?modal=1
Examples: solving quadratics by taking square roots	https://youtu.be/VTlvg4wJ1X0
Solving simple quadratics: review	https://www.khanacademy.org/math/algebra/x2f8bb11595b61c86:quadratic-functions-equations/x2f8bb11595b61c86:untitled-1082/a/solving-simple-quadratics-review?modal=1
Introduction to vertex form	https://youtu.be/_QqhuLixNEk
Graphing quadratics: vertex form	https://youtu.be/7QMoNY6FzvM
Quadratic word problems: vertex form	https://youtu.be/IUA1LYColAg
Solving quadratics by factoring	https://youtu.be/2ZzuZvz33X0
Solving quadratics by factoring: leading coefficient $\neq 1$	https://youtu.be/KbFwLvCOBUI
Quadratic equations word problem: triangle dimensions	https://youtu.be/STcsaKuW-24
Quadratic equations word problem: box dimensions	https://youtu.be/vI9o9XEfXtw
Solving quadratics by factoring: review	https://www.khanacademy.org/math/algebra/x2f8bb11595b61c86:quadratic-functions-equations/x2f8bb11595b61c86:quadratics-solve-factoring/a/solving-quadratics-by-factoring-review?modal=1
The quadratic formula	https://youtu.be/i7idZfS8t8w
Understanding the quadratic formula	https://www.khanacademy.org/math/algebra/x2f8bb11595b61c86:quadratic-functions-equations/x2f8bb11595b61c86:quadratic-formula-a1/a/quadratic-formula-explained-article?modal=1
Example 1: quadratic formula	https://youtu.be/CLrImGKeuEI
Example 2: quadratic formula with negative coefficients	https://youtu.be/_E3gx_yQhHQ

Topic	Video/Notes
Using the quadratic formula: number of solutions	https://youtu.be/XUvKjC21fYU
Proof of the quadratic formula	https://youtu.be/r3SEkdtpobo
Quadratic formula: review	https://www.khanacademy.org/math/algebra/x2f8bb11595b61c86:quadratic-functions-equations/x2f8bb11595b61c86:quadratic-formula-a1/a/quadratic-formula-review?modal=1
Discriminant: review	https://www.khanacademy.org/math/algebra/x2f8bb11595b61c86:quadratic-functions-equations/x2f8bb11595b61c86:quadratic-formula-a1/a/discriminant-review?modal=1
Completing the square	https://youtu.be/bNQY0z76M5A
Solving quadratics by completing the square	https://www.khanacademy.org/math/algebra/x2f8bb11595b61c86:quadratic-functions-equations/x2f8bb11595b61c86:completing-square-quadratics/a/solving-quadratic-equations-by-completing-the-square?modal=1
Example: completing the square	https://youtu.be/VvuURpJbbHE
Example: rewriting expressions by completing the square	https://youtu.be/sh-MP-dVhD4
Example: solving equations by completing the square	https://youtu.be/KouDAzYI_bc
Solving quadratics by completing the square: no solution	https://youtu.be/6agzj3A9IgA
Completing the square: review	https://www.khanacademy.org/math/algebra/x2f8bb11595b61c86:quadratic-functions-equations/x2f8bb11595b61c86:completing-square-quadratics/a/completing-the-square-review?modal=1
Finding the vertex of a parabola in standard form	https://youtu.be/lbl-l7mbKO4
Graphing quadratics: standard form	https://youtu.be/MQtsRYPx3v0
Vertex & axis of symmetry of a parabola	https://youtu.be/dfoXtodyilA
Graphing quadratics: review	https://www.khanacademy.org/math/algebra/x2f8bb11595b61c86:quadratic-functions-equations/x2f8bb11595b61c86:quadratic-forms-features/a/graphing-quadratics-review?modal=1
Introduction to parabola transformations	https://youtu.be/99v51U3HSCU
Shifting parabolas	https://youtu.be/ZmVOR6n_fzY
Scaling & reflecting parabolas	https://youtu.be/AMsbZLxd3IE

Polynomials

Topic	Video/Notes
Introduction to polynomials	https://youtu.be/Vm7H0VTllco
The parts of polynomial expressions	https://youtu.be/REiDXCN0IGU
Finding average rate of change of polynomials	https://youtu.be/neZeuTgEoMA
Adding polynomials	https://youtu.be/ahdKdxsTj8E
Subtracting polynomials	https://youtu.be/5ZdxnFspyP8
Adding and subtracting polynomials: review	https://www.khanacademy.org/math/algebra2/x2ec2f6f830c9fb89:poly-arithmetic/x2ec2f6f830c9fb89:poly-add-sub/a/adding-and-subtracting-polynomials-review?modal=1
Multiplying monomials	https://youtu.be/7EpIN4Ch98Q
Multiplying monomials by polynomials: area model	https://youtu.be/bkZYILrmFRU
Multiplying monomials by polynomials	https://youtu.be/pD2-H15ucNE
Multiplying monomials by polynomials: review	https://www.khanacademy.org/math/algebra2/x2ec2f6f830c9fb89:poly-arithmetic/x2ec2f6f830c9fb89:mono-by-poly/a/multiplying-monomials-by-polynomials-review?modal=1
Multiplying binomials by polynomials: area model	https://youtu.be/C9m5VEEyno8
Multiplying binomials by polynomials	https://youtu.be/D6mivA_8L8U
Multiplying binomials by polynomials: review	https://www.khanacademy.org/math/algebra2/x2ec2f6f830c9fb89:poly-arithmetic/x2ec2f6f830c9fb89:bi-by-poly/a/multiplying-binomials-by-polynomials-review?modal=1
Polynomial special products: difference of squares	https://youtu.be/uNweU6I4lcw
Polynomial special products: perfect square	https://youtu.be/hw5DE8HSZk0
Introduction to factoring higher degree polynomials: part 1	https://youtu.be/7y_2jQlnKag
Introduction to factoring higher degree monomials: part 2	https://youtu.be/Kze7cw30F60

Topic	Video/Notes
Taking common factor from binomial	https://youtu.be/iTn3TTF0IXk
Taking common factor from trinomial	https://youtu.be/MZI6Mna0IeQ
Factoring polynomials by taking a common factor	https://www.khanacademy.org/math/algebra2/x2ec2f6f830c9fb89:poly-factor/x2ec2f6f830c9fb89:poly-factor/a/taking-common-factor/a/taking-common-factors?modal=1
Factoring higher degree polynomials	https://youtu.be/AUBX_aHStQY
Factoring higher-degree polynomials: common factor	https://youtu.be/BFW2IHobO4E
Identifying quadratic patterns	https://youtu.be/OcavJJA8Uyg
Factorization with substitution	https://youtu.be/js5cP-rq0FI
Factoring using the perfect square pattern	https://youtu.be/o-ZbdYVGehl
Factoring using the difference of squares pattern	https://youtu.be/tvnOWIoeeaU
Introduction to polynomial identities	https://youtu.be/EvNKKyHLSpQ
Analyzing polynomial identities	https://youtu.be/-6qiO49Q180
Polynomial division introduction	https://youtu.be/3eowXt_LNbg
Dividing polynomials by x (no remainders)	https://youtu.be/HUdA6LdCRk8
Divide polynomials by x (with remainders)	https://youtu.be/UquFdMg6Z_U
Intro to long division of polynomials	https://youtu.be/FXgV9ySNusc
Dividing quadratics by linear expressions (no remainders)	https://youtu.be/dRvLVdQ8cw4
Dividing quadratics by linear expressions with remainders	https://youtu.be/-veSAbfer7Q
Dividing quadratics by linear expressions with remainders: missing x -term	https://youtu.be/CDJGU9P_pGU
Dividing polynomials by linear expressions	https://youtu.be/G2VBRwXq1q4
Dividing polynomials by linear expressions: missing term	https://youtu.be/QTZ5Dn0t6M4
Divide polynomials by monomials with remainders	https://youtu.be/WqNc6My1aNU
Dividing polynomials with remainders	https://youtu.be/pLCmwHsDYqo
The Fundamental theorem of Algebra	https://youtu.be/d8-LO6FCna0
Quadratics & the Fundamental Theorem of Algebra	https://youtu.be/zNxEVaRbdus

Topic	Video/Notes
Number of possible real roots of a polynomial	https://youtu.be/_HFTRQRpzFM
Factoring using polynomial division	https://youtu.be/l9PiXAbjnMQ
Factoring using polynomial division: missing term	https://youtu.be/AkY3DGzrvk8
Introduction to the Polynomial Remainder Theorem	https://youtu.be/MwG6QD352yc
Remainder theorem: finding remainder from equation	https://youtu.be/MHtTP6vc4RU
Examples: Remainder theorem	https://youtu.be/dBOpC_-PDTA
Remainder theorem: checking factors	https://youtu.be/JAdNNJynWM4
Remainder theorem: finding coefficients	https://youtu.be/e0IBUViss8E
Proof of the Polynomial Remainder Theorem	https://youtu.be/NlazpCER9oM
Zeros of polynomials introduction	https://youtu.be/EtzwLIkoAnM
Zeros of polynomials: plotting zeros	https://youtu.be/5qQUN1fugXQ
Zeros of polynomials: matching equation to zeros	https://youtu.be/CtqwiX4wHEY
Zeros of polynomials: matching equation to graph	https://youtu.be/f-xluUaAfwo
Zeros of polynomials with factoring: grouping	https://youtu.be/w0vTAHIS5B4
Zeros of polynomials with factoring: common factor	https://youtu.be/SONskIMkYdU
Positive and negative intervals of polynomials	https://youtu.be/z3faK7OV3Ew
Multiplicity of zeros of polynomials	https://youtu.be/jrFLb9ZoZH0
Zeros of polynomials: multiplicity	https://youtu.be/1ke_xceCevk
Zeros of polynomials & their graphs	https://www.khanacademy.org/math/algebra2/x2ec2f6f830c9fb89:poly-graphs/x2ec2f6f830c9fb89:poly-intervals/a/zeros-of-polynomials-and-their-graphs?modal=1
Positive & negative intervals of polynomials	https://www.khanacademy.org/math/algebra2/x2ec2f6f830c9fb89:poly-graphs/x2ec2f6f830c9fb89:poly-intervals/a/positive-and-negative-intervals-of-polynomials?modal=1
Introduction to end behaviour of polynomials	https://youtu.be/tZKzaF28sOk
End behaviour of polynomials	https://www.khanacademy.org/math/algebra2/x2ec2f6f830c9fb89:poly-graphs/x2ec2f6f830c9fb89:poly-end-behavior/a/end-behavior-of-polynomials?modal=1

Topic	Video/Notes
Graphs of polynomials	https://www.khanacademy.org/math/algebra2/x2ec2f6f830c9fb89:poly-graphs/x2ec2f6f830c9fb89:poly-graphs-together/a/graphs-of-polynomials?modal=1
Graphs of polynomials: challenge problems	https://www.khanacademy.org/math/algebra2/x2ec2f6f830c9fb89:poly-graphs/x2ec2f6f830c9fb89:poly-graphs-together/a/graphs-of-polynomials-challenge-problems?modal=1

Right triangles and Trigonometry

Topic	Video/Notes
Introduction to the Pythagorean theorem: part 1	https://youtu.be/AA6RfgP-AHU
Introduction to the Pythagorean theorem: part 2	https://youtu.be/AElzy1kNRqo
Pythagorean theorem word problem: fishing boat	https://youtu.be/JVrkLlCA2qw
Example: Pythagorean theorem	https://youtu.be/O64YFIX1_al
Pythagorean theorem word problem: carpet	https://youtu.be/T0IORETWhI
Introduction to the trigonometric ratios	https://youtu.be/Jsiy4TxgIME
Trigonometric ratios in right triangles	https://youtu.be/G-T_6hCdMQc
Hypotenuse, opposite, and adjacent	https://www.khanacademy.org/math/geometry/hs-geo-trig/hs-geo-trig-ratios-intro/a/opposite-adjacent-hypotenuse?modal=1
Trigonometric ratios in right triangles	https://www.khanacademy.org/math/geometry/hs-geo-trig/hs-geo-trig-ratios-intro/a/finding-trig-ratios-in-right-triangles?modal=1
Solving for a side in right triangles with trigonometry	https://youtu.be/l5VbdqRjTXc
Solving for a side in right triangles with trigonometry	https://www.khanacademy.org/math/geometry/hs-geo-trig/hs-geo-solve-for-a-side/a/unknown-side-in-right-triangle-w-trig?modal=1
Introduction to inverse trig functions	https://www.khanacademy.org/math/geometry/hs-geo-trig/hs-geo-solve-for-an-angle/a/inverse-trig-functions-intro?modal=1
Right triangle: word problem	https://youtu.be/aHzd-u35LuA
Angles of elevation and depression	https://www.khanacademy.org/math/geometry/hs-geo-trig/hs-geo-modeling-with-right-triangles/a/angles-of-elevation-and-depression?modal=1

Topic	Video/Notes
Right triangle trigonometry: review	https://www.khanacademy.org/math/geometry/hs-geo-trig/hs-geo-modeling-with-right-triangles/a/right-triangle-trigonometry-review?modal=1
Triangle similarity & the trigonometric ratios	https://youtu.be/QuZMXVJNLCo
Sine & cosine of complementary angles	https://youtu.be/BLQNL_UGONg
Using complementary angles	https://youtu.be/yiH6GoscimY
Trig word problem: complementary angles	https://youtu.be/Z5EnuVJawmY
Solving for a side with the law of sines	https://youtu.be/VjmFKle7xIw
Solving for an angle with the law of sines	https://youtu.be/lJySBMtFlnQ
Proof of the law of sines	https://youtu.be/APNkWrD-U1k
Solving for a side with the law of cosines	https://youtu.be/ZEIOxG7_m3c
Solving for an angle with the law of cosines	https://youtu.be/Ei54NnQ0FKs
Proof of the law of cosines	https://youtu.be/pGaDcOMdw48
Laws of sines and cosines: review	https://www.khanacademy.org/math/geometry/hs-geo-trig/hs-geo-solving-general-triangles/a/laws-of-sines-and-cosines-review?modal=1
Introduction to radians	https://youtu.be/EnwWxMZVBeg
Radians & degrees	https://youtu.be/z8vj8tUCkxY
Degrees to radians	https://youtu.be/O3jvUZ8wvZs
Radians to degrees	https://youtu.be/z0-1gBy1yKE
Graph of $y = \sin x$	https://youtu.be/sjUhr0HkLUg
Intersection points of $y = \sin x$ and $y = \cos x$	https://youtu.be/08zHioOVTd4
Graph of $y = \tan x$	https://youtu.be/FK6-tZ5D7xM
Features of sinusoidal functions	https://youtu.be/s4cLM0l1gd4
Amplitude & period of sinusoidal functions from equation	https://youtu.be/SBqnRja4CW4
Amplitude & period of sinusoidal functions from equation	https://youtu.be/SBqnRja4CW4
Midline, amplitude, and period: review	https://www.khanacademy.org/math/trigonometry/trig-function-graphs/period-of-sinusoids/a/midline-amplitude-and-period-review?modal=1
Transforming sinusoidal graphs: vertical stretch & horizontal reflection	https://youtu.be/0zCcFSO8ouE

Topic	Video/Notes
Transforming sinusoidal graphs: vertical & horizontal stretches	https://youtu.be/uBVhtGL9y88
Sinusoidal function from graph	https://youtu.be/yHo0CcDVHsk
Trig word problem: modelling daily temperature	https://youtu.be/RX0DY9eRp8g
Trig word problem: modeling annual temperature	https://youtu.be/mVICXkht6hg
Trig word problem: length of day (phase shift)	https://youtu.be/MJBjGnR6vIk
Introduction to $\arcsin x$	https://youtu.be/JGU74wbZMLg
Introduction to $\arctan x$	https://youtu.be/ldxeo49szW0
Introduction to $\arccos x$	https://youtu.be/eTDAj4ebK28
Restricting domains of functions to make them invertible	https://youtu.be/tCV9Vyllaw0
Domain & range of inverse tangent function	https://youtu.be/QGfdhqbilY8
Using inverse trig functions with a calculator	https://youtu.be/MABWdzmZFIQ
Inverse trigonometric functions: review	https://www.khanacademy.org/math/prec calculus/x9e81a4f98389efdf:trig/x9e81a4f98389efdf:inverse-trig/a/inverse-trigonometric-functions-review?modal=1
Solving sinusoidal equations of the form $\sin x = d$	https://youtu.be/NC7iWEQ9Kug
Solving $\cos \theta = 1$ and $\cos \theta = -1$	https://youtu.be/SdHwokUU8xl
Trig word problem: solving for temperature	https://youtu.be/2pwnr_soZEU
Trigonometric equations: review	https://www.khanacademy.org/math/prec calculus/x9e81a4f98389efdf:trig/x9e81a4f98389efdf:sinus-models/a/trigonometric-equations-review?modal=1
Sine & cosine identities: symmetry	https://youtu.be/tzQ7arA917E
Tangent identities: symmetry	https://youtu.be/k_wJsio68D4
Sine & cosine identities: periodicity	https://youtu.be/h-TPSylHrvE
Tangent identities: periodicity	https://youtu.be/C3HFAyigqoY
Review of trig angle addition identities	https://youtu.be/a70-dYvDJZY
Using the cosine angle addition identity	https://youtu.be/h0SNEO25vIw
Using the cosine double-angle identity	https://youtu.be/D_smr0GBPvA
Proof of the sine angle addition identity	https://youtu.be/R0EQg9vgbQw
Proof of the cosine angle addition identity	https://youtu.be/0VBQnR2h8XM

Topic	Video/Notes
Finding trig values using angle addition identities	https://youtu.be/2RbKfRfzD-M
Using trig angle addition identities: finding side lengths	https://youtu.be/sl789G6FBb4
Using trig angle addition identities: manipulating expressions	https://youtu.be/yV4Xa8Xtmrc
Using trigonometric identities	https://youtu.be/4OEeVLo5V1o
Trig identity reference	https://www.khanacademy.org/math/prec calculus/x9e81a4f98389efdf:trig/x9e81a4f98389efdf:using-trig-id/a/trig-identity-reference?modal=1

Analytic Geometry and Circles

Topic	Video/Notes
Distance formula	https://youtu.be/nyZuite17Pc
Distance formula: notes	https://www.khanacademy.org/math/geometry/hs-geo-analytic-geometry/hs-geo-distance-and-midpoints/a/distance-formula?modal=1
Midpoint formula	https://youtu.be/Ez_-RwV9WVo
Midpoint formula: notes	https://www.khanacademy.org/math/geometry/hs-geo-analytic-geometry/hs-geo-distance-and-midpoints/a/midpoint-formula?modal=1
Distance formula: review	https://www.khanacademy.org/math/geometry/hs-geo-analytic-geometry/hs-geo-distance-and-midpoints/a/distance-formula-review?modal=1
Midpoint formula: review	https://www.khanacademy.org/math/geometry/hs-geo-analytic-geometry/hs-geo-distance-and-midpoints/a/midpoint-formula-review?modal=1
Dividing line segments: graphical	https://youtu.be/0rINHYYHhrWs
Dividing line segments	https://youtu.be/IEGS5ECgFxE
Introduction to parallel & perpendicular lines	https://youtu.be/V0xounKGEXs
Parallel & perpendicular lines from graph	https://youtu.be/6riBTnll4fw
Example 1: parallel lines from equation	https://youtu.be/T-aCweuimis
Example 2: parallel lines from equation	https://youtu.be/IOWXZFP8Vuc
Example 3: parallel lines from equation	https://youtu.be/y5yNi08cr6l
Perpendicular lines from equation	https://youtu.be/0671cRNjeKl

Topic	Video/Notes
Example 1: writing equations of perpendicular lines	https://youtu.be/TsEhZRT16LU
Example 2: writing equations of perpendicular lines	https://youtu.be/8m8hFcFJ-JM
Proof: parallel lines have the same slope	https://youtu.be/9ZYolliBXYE
Proof: perpendicular lines have opposite reciprocal slopes	https://youtu.be/HyThzLRuqXo
Circles glossary	https://youtu.be/U2W7HPyC0cM
Radius, diameter, circumference & π	https://youtu.be/jyLRpr2P0MQ
Introduction to arc measure	https://youtu.be/_H4jllna_ec
Finding arc measures	https://youtu.be/GOA9XWEo7QI
Finding arc measures with equations	https://youtu.be/bsDu8VQKwxA
Arc length from subtended angle	https://youtu.be/tVcasOt55Lc
Subtended angle from arc length	https://youtu.be/1BH2TNzAAik
Arc length as fraction of circumference	https://youtu.be/XFI7GK4Nv-s
Arc length from subtended angle: radians	https://youtu.be/dtQyiDMoub4
Area of a sector	https://youtu.be/u8JFdwmbvVQ
Inscribed angles	https://youtu.be/aNi1-zeEps8
Graphing circles from features	https://youtu.be/LDjMDIuTWtM
Features of a circle from its graph	https://youtu.be/SLyM_-sQwMM
Features of a circle from its standard equation	https://youtu.be/JvDpYlyKkNU
Graphing a circle from its standard equation	https://youtu.be/thDrJvWNI8M
Writing standard equation of a circle	https://youtu.be/iX5UgArMyil
Features of a circle from its expanded equation	https://youtu.be/XyDMsotfJhE
Circle equation: review	https://www.khanacademy.org/math/geometry/hs-geo-circles/hs-geo-circle-expanded-equation/a/circle-equation-review?modal=1

Complex Numbers

Topic	Video/Notes
Introduction to the imaginary numbers	https://youtu.be/ysVcAYo7UPI

Topic	Video/Notes
Powers of the imaginary unit	https://youtu.be/QiwfF83NWNWA
Simplifying roots of negative numbers	https://youtu.be/s03qez-6JMA
i as the principal root of -1	https://youtu.be/rYG1D5IUE4I
Introduction to complex numbers	https://youtu.be/SP-YJe7Vldo
Classifying complex numbers	https://youtu.be/A_ESfuN1Pkg
Plotting numbers on the complex plane	https://youtu.be/kGzXlbauGQk
The complex plane	https://www.khanacademy.org/math/prec calculus/x9e81a4f98389efdf:complex/ x9e81a4f98389efdf:complex-plane/a/the- complex-plane?modal=1
Adding complex numbers	https://youtu.be/SfbjqVyQljk
Subtracting complex numbers	https://youtu.be/tvXRaZbljO8
Distance & midpoint of complex numbers	https://youtu.be/Efoeqb6tC88
Multiplying complex numbers	https://youtu.be/cWn6g8Qqvs4
Complex number operations: review	https://www.khanacademy.org/math/ prec calculus/x9e81a4f98389efdf:complex/ x9e81a4f98389efdf:complex-mul/a/complex- number-operations-review?modal=1
Introduction to complex number conjugates	https://youtu.be/BZxZ_eEuJBM
Complex number conjugates	https://youtu.be/dbxJ6LD0344
Dividing complex numbers	https://youtu.be/Z8j5RDOibV4
Dividing complex numbers: review	https://www.khanacademy.org/math/ prec calculus/x9e81a4f98389efdf:complex/ x9e81a4f98389efdf:complex-div/a/dividing- complex-numbers-review?modal=1
Complex numbers & sum of squares factorization	https://youtu.be/8TPofjGXDR4
Factoring sum of squares	https://youtu.be/C3QPTCwplZo
Absolute value of complex numbers	https://youtu.be/yvzyC4VBpUU
Absolute value & angle of complex numbers	https://youtu.be/FwuPXchH2rA
Complex number absolute value & angle: review	https://www.khanacademy.org/math/ prec calculus/x9e81a4f98389efdf:complex/ x9e81a4f98389efdf:complex-abs-angle/a/ complex-number-absolute-value-and-angle- review?modal=1
Polar & rectangular forms of complex numbers	https://youtu.be/8RasCV_Lggg

Topic	Video/Notes
Complex number forms: review	https://www.khanacademy.org/math/prec calculus/x9e81a4f98389efdf:complex/x9e81a4f98389efdf:complex-polar/a/complex-number-forms-review?modal=1
Dividing complex numbers: polar & exponential form	https://youtu.be/xOa-l_tXgWA
Visualizing complex number multiplication	https://www.khanacademy.org/math/prec calculus/x9e81a4f98389efdf:complex/x9e81a4f98389efdf:complex-mul-div-polar/a/visualizing-complex-multiplication?modal=1
Powers of complex numbers	https://youtu.be/dl_9NC_J6yo
Complex number equations: $x^3 = 1$	https://youtu.be/N0Y8ia57C24
Visualizing complex number powers	https://www.khanacademy.org/math/prec calculus/x9e81a4f98389efdf:complex/x9e81a4f98389efdf:complex-mul-div-polar/a/visualizing-complex-powers?modal=1
Complex number polar form: review	https://www.khanacademy.org/math/prec calculus/x9e81a4f98389efdf:complex/x9e81a4f98389efdf:complex-mul-div-polar/a/complex-number-polar-form-review?modal=1
Solving quadratic equations: complex roots	https://youtu.be/dnjK4DPqh0k

Vectors

Topic	Video/Notes
Introduction to vectors and scalars	https://youtu.be/ihNZlp7iUHE
Recognizing vectors	https://youtu.be/n8lc2Oj-zvA
Recognizing vectors practice	https://www.khanacademy.org/math/prec calculus/x9e81a4f98389efdf:vectors/x9e81a4f98389efdf:vectors-intro/a/recognizing-vectors?modal=1
Equivalent vectors	https://www.khanacademy.org/math/prec calculus/x9e81a4f98389efdf:vectors/x9e81a4f98389efdf:vectors-intro/v/equivalent-vectors-examples?modal=1
Example 1: components of vectors	https://youtu.be/BmDph4uNfPI
Example 2: components of vectors	https://youtu.be/v7ZZ1ctT1k0
Vector magnitude from graph	https://youtu.be/-U53eHKCLcg
Vector magnitude from components	https://youtu.be/qMZnsj4ZO9g

Topic	Video/Notes
Vector magnitude from initial & terminal points	https://youtu.be/jfaSZhNFEOE
Scalar multiplication of vectors	https://youtu.be/JuTvjqgpUMQ
Analyzing scalar multiplication	https://youtu.be/kLLsJXc1E1E
Adding & subtracting vectors	https://youtu.be/VgqsM-XdBD0
Graphically adding & subtracting vectors	https://youtu.be/BsBH8nAv5l4
Graphically subtracting vectors	https://youtu.be/coDfeoi2zcQ
Adding vectors algebraically & graphically	https://youtu.be/8QihetGj3pg
Combined vector operations	https://youtu.be/TdhhEonaHrc
Vector operations: review	https://www.khanacademy.org/math/prec calculus/x9e81a4f98389efdf:vectors/x9e81a4f98389efdf:vec-ops/a/vector-operations-review?modal=1
Introduction to unit vectors	https://youtu.be/9yIUcCOTH8Y
Example: finding unit vector with given direction	https://youtu.be/jCkhhKFZgLk
Example: finding unit vector with given direction	https://youtu.be/jCkhhKFZgLk
Example: scaling unit vectors	https://youtu.be/OFBI_rNDZE0
Direction of vectors from components: 1st & 2nd quadrants	https://youtu.be/A3OuFLHum6w
Direction of vectors from components: 3rd & 4th quadrants	https://youtu.be/EX0Ha42WQ24
Vector forms: review	https://www.khanacademy.org/math/prec calculus/x9e81a4f98389efdf:vectors/x9e81a4f98389efdf:magnitude-direction/a/vector-forms-review?modal=1
Vector components from magnitude & direction	https://youtu.be/MkFbisCyjFc
Vector components from magnitude & direction: advanced	https://www.khanacademy.org/math/prec calculus/x9e81a4f98389efdf:vectors/x9e81a4f98389efdf:component-form/a/vector-component-form-no-direction-angle?modal=1
Vector magnitude and direction: review	https://www.khanacademy.org/math/prec calculus/x9e81a4f98389efdf:vectors/x9e81a4f98389efdf:component-form/a/vector-magnitude-and-direction-review?modal=1
Adding vectors in magnitude & direction form: part 1	https://youtu.be/6Kw2nlwWYL0

Topic	Video/Notes
Adding vectors in magnitude & direction form: part 2	https://youtu.be/SjY5UytITTs
Vector addition & magnitude	https://youtu.be/0t8W4JFpP2M
Vectors word problem: pushing a box	https://youtu.be/9A8wM1UMLyo
Vectors word problem: tug of war	https://youtu.be/KNkINvGof8o
Vectors word problem: hiking	https://youtu.be/cf1-CwrDwrA

Coins Sections

Topic	Video/Notes
Introduction to conic sections	https://youtu.be/0A7RR0oy2ho
Introduction to ellipses	https://youtu.be/lvAYFUIEpFI
Ellipse standard equation from graph	https://youtu.be/_JrQF8Rkaio
Ellipse graph from standard equation	https://youtu.be/h5dIVNjVjXg
Ellipse features: review	https://www.khanacademy.org/math/prec calculus/x9e81a4f98389efdf:conics/x9e81a4f98389efdf:ellipse-center-radii/a/ellipse-features-review?modal=1
Ellipse equation: review	https://www.khanacademy.org/math/prec calculus/x9e81a4f98389efdf:conics/x9e81a4f98389efdf:ellipse-center-radii/a/ellipse-equation-review?modal=1
Foci of an ellipse from equation	https://youtu.be/QR2vxfwiHAU
Ellipse foci: review	https://www.khanacademy.org/math/prec calculus/x9e81a4f98389efdf:conics/x9e81a4f98389efdf:ellipse-foci/a/ellipse-foci-review?modal=1
Introduction to focus & directrix	https://youtu.be/pe8Dm_FUpdU
Equation of a parabola from focus & directrix	https://youtu.be/okXVhDMuGFg
Focus & directrix of a parabola from equation	https://youtu.be/w56Vuf9tHfA
Parabola focus & directrix: review	https://www.khanacademy.org/math/prec calculus/x9e81a4f98389efdf:conics/x9e81a4f98389efdf:parab-focus-directrix/a/parabola-focus-directrix-review?modal=1
Introduction to hyperbolas	https://youtu.be/pzSyOTkAsY4
Example 1: vertices & direction of a hyperbola	https://youtu.be/oO3nWnJppqg

Topic	Video/Notes
Example 2: vertices & direction of a hyperbola	https://youtu.be/hnVFThmLW5Q
Example: graphing hyperbolas	https://youtu.be/hl58vTCqVIY
Foci of a hyperbola from equation	https://youtu.be/S0Fd2Tg2v7M
Proof of the hyperbola foci formula	https://youtu.be/HPRFmu7JsKU
Equation of a hyperbola not centered at the origin	https://youtu.be/IGQw-W1PxBE
Representing a line tangent to a hyperbola	https://youtu.be/c_8QQbVQKU0
Common tangent of circle & hyperbola: part 1	https://youtu.be/MhLfun2Vask
Common tangent of circle & hyperbola: part 2	https://youtu.be/0imeUgSxR10
Common tangent of circle & hyperbola: part 3	https://youtu.be/RomnHMWSLoE
Common tangent of circle & hyperbola: part 4	https://youtu.be/eGo8C2Jshzs
Common tangent of circle & hyperbola: part 5	https://youtu.be/rPoqpQcgNv4
Intersection of circle & hyperbola	https://youtu.be/6g3DPg2HqGw