

Algebra I 3: Quadratics

Week 1: Maximum and Minimum + Intervals

- finding the maximum and minimum of a function
- determining the intervals for where the function is decreasing, increasing, positive, or negative

To Practice:

Relative Maxima and Minima:

<https://www.khanacademy.org/math/algebra/x2f8bb11595b61c86:functions/x2f8bb11595b61c86:maximum-and-minimum-points/e/recognize-maxima-and-minima>

Absolute Maxima and Minima:

<https://www.khanacademy.org/math/algebra/x2f8bb11595b61c86:functions/x2f8bb11595b61c86:maximum-and-minimum-points/e/recognize-absolute-maxima-and-minima>

Positive and Negative Intervals:

https://www.khanacademy.org/math/algebra/x2f8bb11595b61c86:functions/x2f8bb11595b61c86:intervals-where-a-function-is-positive-negative-increasing-or-decreasing/e/positive_and_negative_parts_of_functions

Increasing and Decreasing Intervals:

<https://www.khanacademy.org/math/algebra/x2f8bb11595b61c86:functions/x2f8bb11595b61c86:intervals-where-a-function-is-positive-negative-increasing-or-decreasing/e/increasing-decreasing-intervals-of-functions>

Week 2: Average Rate of Change + Word Problems

- determining the average rate of change within an interval of a graph
- determining average rate of change in a word problem

To Practice:

Average Rate of Change: Graphs and Tables:

<https://www.khanacademy.org/math/algebra/x2f8bb11595b61c86:functions/x2f8bb11595b61c86:average-rate-of-change/e/avg-rate-of-change-graphs-tables>

Average Rate of Change Word Problems:

<http://www.eastpennsd.org/teacherpages/vdabrowski/wp-content/uploads/sites/15/2015/08/Rate-of-Change-Word-Problem-WS.pdf>

Week 3: Arithmetic Sequences and Geometric Sequences

- what are arithmetic and geometric sequences?
- using recursive and explicit formulas for arithmetic and geometric sequences

To Practice:

Arithmetic Sequence Worksheet:

<https://cdn.kutasoftware.com/Worksheets/Alg2/Arithmetic%20Sequences.pdf>

Geometric Sequence Worksheet:

<https://cdn.kutasoftware.com/Worksheets/Alg2/Geometric%20Sequences.pdf>

Week 4: Properties of Exponents

- how to add, subtract, multiply, and divide exponents

To Practice:

Exponent Properties Worksheet:

https://www.mcckc.edu/tutoring/docs/br/math/expon_logar/Exponent_Rules_Practice.pdf

Week 5: Radicals

- simplifying radicals
- adding, subtracting, multiplying, and dividing radicals

To Practice:

Simplifying Radicals Worksheet:

<https://www.fusd.net/site/handlers/filedownload.ashx?moduleinstanceid=12431&dataid=15582&FileName=A.3%20Simplifying%20Radicals%20HW.pdf>

Radical Expressions:

<https://cdn.kutasoftware.com/Worksheets/Alg2/Adding%20Subtracting%20Multiplying%20Radicals.pdf>

Week 6: Intro to Quadratics and Factoring

- what is a quadratic?
- what is factoring for?
- explain all methods for factoring

<https://www.khanacademy.org/math/algebra/x2f8bb11595b61c86:quadratics-multiplying-factoring/x2f8bb11595b61c86:factor-quadratics-strategy/a/factoring-quadratics-in-any-form>

To practice:

Factoring out the GCF:

<https://www.cusd80.com/cms/lib6/AZ01001175/Centricity/Domain/3342/GCF%20key.pdf>

Grouping Method:

<https://cdn.kutasoftware.com/Worksheets/Alg2/Factoring%20By%20Grouping.pdf>

Perfect Square:

<https://ruskiekorni.ca/homework/math/groups/gr-10-11/2020-03-25/Factoring%20Perfect%20Square%20Trinomials.pdf>

Difference of Squares:

<https://www.sd43.bc.ca/Resources/ParentResources/math/10/Documents/differnce%20of%20squares%20worksheet.pdf>

Week 7: Factoring cont.

- continue with factoring with different methods

To practice:

Factoring out the GCF:

<https://www.cusd80.com/cms/lib6/AZ01001175/Centricity/Domain/3342/GCF%20key.pdf>

Grouping Method:

<https://cdn.kutasoftware.com/Worksheets/Alg2/Factoring%20By%20Grouping.pdf>

Perfect Square:

<https://russkiekorni.ca/homework/math/groups/gr-10-11/2020-03-25/Factoring%20Perfect%20Square%20Trinomials.pdf>

Difference of Squares:

<https://www.sd43.bc.ca/Resources/ParentResources/math/10/Documents/differnce%20of%20squares%20worksheet.pdf>

Week 8: Solving Quadratic Functions

- solving quadratic equations using factoring, completing the square, graphing, square roots, or quadratic formula

To Practice:

Factoring:

<https://cdn.kutasoftware.com/Worksheets/Alg1/Solving%20Quadratic%20Factoring.pdf>

Square Roots:

<https://cdn.kutasoftware.com/Worksheets/Alg1/Solving%20Quadratic%20Roots.pdf>

Quadratic Formula:

<https://cdn.kutasoftware.com/Worksheets/Alg1/Quadratic%20Formula.pdf>

Completing the Square:

<https://cdn.kutasoftware.com/Worksheets/Alg1/Solving%20Completing%20Square.pdf>

Graphing:

<https://cdn.kutasoftware.com/Worksheets/Alg1/Graphing%20Quadratic%20Functions.pdf>

Week 9: Solving Quadratic Functions cont.

To Practice:

Factoring:

<https://cdn.kutasoftware.com/Worksheets/Alg1/Solving%20Quadratic%20Factoring.pdf>

Square Roots:

<https://cdn.kutasoftware.com/Worksheets/Alg1/Solving%20Quadratic%20Roots.pdf>

Quadratic Formula:

<https://cdn.kutasoftware.com/Worksheets/Alg1/Quadratic%20Formula.pdf>

Completing the Square:

<https://cdn.kutasoftware.com/Worksheets/Alg1/Solving%20Completing%20Square.pdf>

Graphing:

<https://cdn.kutasoftware.com/Worksheets/Alg1/Graphing%20Quadratic%20Functions.pdf>

Week 10: Vertex Form

- vertex vs. standard form
- What does vertex form tell us?
- how to convert from standard to vertex form + vice versa

To Practice:

Vertex Form Worksheets:

<https://cdn.kutasoftware.com/Worksheets/Alg2/Vertex%20Form%20of%20Parabolas.pdf>

<https://mi01000971.schoolwires.net/cms/lib/MI01000971/Centricity/Domain/307/5.2WS.pdf>

Week 11: Features of Quadratic Functions

- identifying vertex, max/min, roots, intercepts, end behavior, and axis of symmetry of parabolas

To Practice:

Features of Quadratic Functions:

<https://www.khanacademy.org/math/algebra/x2f8bb11595b61c86:quadratic-functions-equations/x2f8bb11595b61c86:quadratic-forms-features/v/rewriting-a-quadratic-function-to-find-roots-and-vertex>

Week 12: Review + Catch - Up

Resources:

- <https://www.khanacademy.org/math/algebra/x2f8bb11595b61c86:functions/x2f8bb11595b61c86:maximum-and-minimum-points/e/recognize-maxima-and-minima>
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- <https://www.khanacademy.org/math/algebra/x2f8bb11595b61c86:functions/x2f8bb11595b61c86:intervals-where-a-function-is-positive-negative-increasing-or-decreasing/e/increasing-decreasing-intervals-of-functions>
- <https://www.khanacademy.org/math/algebra/x2f8bb11595b61c86:functions/x2f8bb11595b61c86:average-rate-of-change/e/avg-rate-of-change-graphs-tables>
- <http://www.eastpennsd.org/teacherpages/vdabrowski/wp-content/uploads/sites/15/2015/08/Rate-of-Change-Word-Problem-WS.pdf>
- <http://www.eastpennsd.org/teacherpages/vdabrowski/wp-content/uploads/sites/15/2015/08/Rate-of-Change-Word-Problem-WS.pdf>
- <https://cdn.kutasoftware.com/Worksheets/Alg2/Arithmetic%20Sequences.pdf>
- <https://cdn.kutasoftware.com/Worksheets/Alg2/Geometric%20Sequences.pdf>
- https://www.mcckc.edu/tutoring/docs/br/math/expon_logar/Exponent_Rules_Practice.pdf
- <https://www.fusd.net/site/handlers/filedownload.ashx?moduleinstanceid=12431&dataid=15582&FileName=A.3%20Simplifying%20Radicals%20HW.pdf>
- <https://cdn.kutasoftware.com/Worksheets/Alg2/Adding%20Subtracting%20Multiplying%20Radicals.pdf>
- <https://www.khanacademy.org/math/algebra/x2f8bb11595b61c86:quadratics-multiplying-factoring/x2f8bb11595b61c86:factor-quadratics-strategy/a/factoring-quadratics-in-any-form>
- <https://www.cusd80.com/cms/lib6/AZ01001175/Centricity/Domain/3342/GCF%20key.pdf>
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- <https://www.sd43.bc.ca/Resources/ParentResources/math/10/Documents/difference%20of%20squares%20worksheet.pdf>
- <https://www.cusd80.com/cms/lib6/AZ01001175/Centricity/Domain/3342/GCF%20key.pdf>
- <https://cdn.kutasoftware.com/Worksheets/Alg2/Factoring%20By%20Grouping.pdf>
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- <https://cdn.kutasoftware.com/Worksheets/Alg1/Solving%20Quadratic%20Factoring.pdf>
- <https://cdn.kutasoftware.com/Worksheets/Alg1/Solving%20Quadratic%20Roots.pdf>
- <https://cdn.kutasoftware.com/Worksheets/Alg1/Quadratic%20Formula.pdf>

- <https://cdn.kutasoftware.com/Worksheets/Alg1/Solving%20Completing%20Square.pdf>
- <https://cdn.kutasoftware.com/Worksheets/Alg1/Graphing%20Quadratic%20Functions.pdf>
- <https://cdn.kutasoftware.com/Worksheets/Alg1/Solving%20Quadratic%20Factoring.pdf>
- <https://cdn.kutasoftware.com/Worksheets/Alg1/Solving%20Quadratic%20Roots.pdf>
- <https://cdn.kutasoftware.com/Worksheets/Alg1/Quadratic%20Formula.pdf>
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- <https://cdn.kutasoftware.com/Worksheets/Alg1/Graphing%20Quadratic%20Functions.pdf>
- <https://cdn.kutasoftware.com/Worksheets/Alg2/Vertex%20Form%20of%20Parabolas.pdf>
- <https://mi01000971.schoolwires.net/cms/lib/MI01000971/Centricity/Domain/307/5.2 WS.pdf>
- <https://www.khanacademy.org/math/algebra/x2f8bb11595b61c86:quadratic-functions-equations/x2f8bb11595b61c86:quadratic-forms-features/v/rewriting-a-quadratic-function-to-find-roots-and-vertex>