

Unit 7 Overview – Quadratics

Learning Outcomes

E2. Demonstrate an understanding of the characteristics of quadratic functions, including: vertex, intercepts, domain and range, axis of symmetry.

- 2.1 Determine, with or without technology, the intercepts of the graph of a quadratic function.
- 2.2 Determine, by factoring, the roots of a quadratic equation, and verify by substitution.
- 2.3 Determine, using the quadratic formula, the roots of a quadratic equation.
- 2.4 Explain the relationships among the roots of an equation, the zeros of the corresponding function, and the x-intercepts of the graph of the function.
- 2.5 Explain, using examples, why the graph of a quadratic function may have zero, one or two x-intercepts.
- 2.6 Express a quadratic equation in factored form, using the zeros of a corresponding function or the x-intercepts of its graph.
- 2.7 Determine, with or without technology, the coordinates of the vertex of the graph of a quadratic function.
- 2.8 Determine the equation of the axis of symmetry of the graph of a quadratic function, given the x-intercepts of the graph.
- 2.9 Determine the coordinates of the vertex of the graph of a quadratic function, given the equation of the function and the axis of symmetry, and determine if the y-coordinate of the vertex is a maximum or a minimum.
- 2.10 Determine the domain and range of a quadratic function.
- 2.11 Sketch the graph of a quadratic function.
- 2.12 Solve a contextual problem that involves the characteristics of a quadratic function

By the end of the unit, you should be able to solve this type of question...

1) Hannah is organizing the school dance. She decides to set the ticket price at \$10 and expects to sell 400 tickets. For every dollar increase in price, 20 less people will buy tickets. What price should she set in order to maximize the revenue?

2) Lars is competing the National Lifesaving Championship. He dives under an obstacle as he is swimming in his lane. Ryan observes that Lars' depth underwater over time could be modeled by a quadratic. He was underwater for 4 seconds and his maximum depth was 1 m. How far underwater is he after 3 seconds?

Unit 7 Lessons

- 7.1 Quadratics Info
- 7.2 Quadratics Vocab
- 7.3 Writing an Equation
- 7.4 Solving Quadratics
- 7.5 Factored Form
- 7.6 Factoring Quadratics
- 7.7 Quadratic Formula
- 7.8 Quadratic Modeling
- Review Worksheet
- Review Practice Test Questions
- Unit Test **Total = 11 classes**