# Assessment Blueprint - Unit 7 Introduction to Quadratic Functions

**Unit 7 Overview and Readiness (prerequisite skill assessment)**

| Item | TEKS |
|---|---|
| 1 | A10(B) multiply polynomials of degree one and degree two *(from Unit 6)* |
| 2 | A10(E) factor, if possible, trinomials with real factors in the form $ax^2+bx+c$, including perfect square trinomials of degree two *(from Unit 6)* |
| 3 | Identifying difference between linear and exponential data (given in tables) -discussion of constant growth factor and constant difference *(from Unit 5)*<br><br>A3(C) graph linear functions on the coordinate plane and identify key features, including $x$-intercept, $y$-intercept, zeros, and slope, in mathematical and real-world problems<br><br>A9(D) graph exponential functions that model growth and decay and identify key features, including $y$-intercept and asymptote, in mathematical and real-world problems |

**Unit 7 Section A**

| Item | TEKS |
|---|---|
| 1 | A7(A) graph quadratic functions on the coordinate plane and use the graph to identify key attributes, if possible, including $x$-intercept, $y$-intercept, zeros, maximum value, minimum values, vertex, and the equation of the axis of symmetry |
| 2 | A7(A) graph quadratic functions on the coordinate plane and use the graph to identify key attributes, if possible, including $x$-intercept, $y$-intercept, zeros, maximum value, minimum values, vertex, and the equation of the axis of symmetry |
| 3 | A7(A) graph quadratic functions on the coordinate plane and use the graph to identify key attributes, if possible, including $x$-intercept, $y$-intercept, zeros, maximum value, minimum values, vertex, and the equation of the axis of symmetry |
| 4 | A7(A) graph quadratic functions on the coordinate plane and use the graph to identify key attributes, if possible, including $x$-intercept, $y$-intercept, zeros, maximum value, minimum values, vertex, and the equation of the axis of symmetry |
| 5 | A7(A) graph quadratic functions on the coordinate plane and use the graph to identify key attributes, if possible, including $x$-intercept, $y$-intercept, zeros, maximum value, minimum values, vertex, and the equation of the axis of symmetry |

**Unit 7 Section B**

| Item | TEKS |
|---|---|
| 1 | A10(B) multiply polynomials of degree one and degree two |
| 2 | A12(B) evaluate functions, expressed in function notation, given one or more elements in their domains |
| 3 | A7(A) graph quadratic functions on the coordinate plane and use the graph to identify key attributes, if possible, including $x$-intercept, $y$-intercept, zeros, maximum value, minimum values, vertex, and the equation of the axis of symmetry |
| 4 | A7(A) graph quadratic functions on the coordinate plane and use the graph to identify key attributes, if possible, including $x$-intercept, $y$-intercept, zeros, maximum value, minimum values, vertex, and the equation of the axis of symmetry |
| 5 | A6(A) determine the domain and range of quadratic functions and represent the domain and range using inequalities |
| 6 | A7(A) graph quadratic functions on the coordinate plane and use the graph to identify key attributes, if possible, including $x$-intercept, $y$-intercept, zeros, maximum value, minimum values, vertex, and the equation of the axis of symmetry |

**Unit 7 Section C**

| Item | TEKS |
|---|---|
| 1 | A10(B) multiply polynomials of degree one and degree two |
| 2 | A10(D) rewrite polynomial expressions of degree one and degree two in equivalent forms using the distributive property |
| 3 | A6(B) write equations of quadratic functions given the vertex and another point on the graph, write the equation in vertex form ($f(x)=a(x-h)^2+k$), and rewrite the equation from vertex form to standard form ($f(x)=ax^2+bx+c$) |
| 4 | A10(E) factor, if possible, trinomials with real factors in the form $ax^2+bx+c$, including perfect square trinomials of degree two |
| 5 | A7(A) graph quadratic functions on the coordinate plane and use the graph to identify key attributes, if possible, including $x$-intercept, $y$-intercept, zeros, maximum value, minimum values, vertex, and the equation of the axis of symmetry |
| 6 | A7(A) graph quadratic functions on the coordinate plane and use the graph to identify key attributes, if possible, including $x$-intercept, $y$-intercept, zeros, maximum value, minimum values, vertex, and the equation of the axis of symmetry |

**Unit 7 Section D**

| Item | TEKS |
|---|---|
| 1 | A7(A) graph quadratic functions on the coordinate plane and use the graph to identify key attributes, if possible, including $x$-intercept, $y$-intercept, zeros, maximum value, minimum values, vertex, and the equation of the axis of symmetry |
| 2 | A6(C) write quadratic functions when given real solutions and graphs of their related equations |
| 3 | A7(B) describe the relationship between the linear factors of quadratic expressions and the zeros of their associated quadratic functions |
| 4 | A7(A) graph quadratic functions on the coordinate plane and use the graph to identify key attributes, if possible, including $x$-intercept, $y$-intercept, zeros, maximum value, minimum values, vertex, and the equation of the axis of symmetry |
| 5 | A6(B) write equations of quadratic functions given the vertex and another point on the graph, write the equation in vertex form ($f(x)=a(x-h)^2+k$), and rewrite the equation from vertex form to standard form ($f(x)=ax^2+bx+c$) |
| 6 | A7(C) determine the effects on the graph of the parent function $f(x)=x^2$ when $f(x)$ is replaced by $af(x)$, $f(x)+d$, $f(x-c)$, $f(bx)$ for specific values of $a$, $b$, $c$, and $d$ |

**Unit 7 Quiz**

| Item | TEKS |
|---|---|
| 1 | A7(A) graph quadratic functions on the coordinate plane and use the graph to identify key attributes, if possible, including $x$-intercept, $y$-intercept, zeros, maximum value, minimum values, vertex, and the equation of the axis of symmetry<br><br>A9(D) graph exponential functions that model growth and decay and identify key features, including $y$-intercept and asymptote, in mathematical and real-world problems |
| 2 | A12(B) evaluate functions, expressed in function notation, given one or more elements in their domains |
| 3 | A6(C) write quadratic functions when given real solutions and graphs of their related equations |
| 4 | A7(A) graph quadratic functions on the coordinate plane and use the graph to identify key attributes, if possible, including $x$-intercept, $y$-intercept, zeros, maximum value, minimum values, vertex, and the equation of the axis of symmetry |
| 5 | A10(E) factor, if possible, trinomials with real factors in the form $ax^2+bx+c$, including perfect square trinomials of degree two |
| 6 | A7(B) describe the relationship between the linear factors of quadratic expressions and the zeros of their associated quadratic functions |

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| 7 | A7(C) determine the effects on the graph of the parent function $f(x)=x^2$ when $f(x)$ is replaced by $af(x)$, $f(x)+d$, $f(x-c)$, $f(bx)$ for specific values of $a$, $b$, $c$, and $d$ |
| 8 | A6(C) write quadratic functions when given real solutions and graphs of their related equations |
| 9 | A7(A) graph quadratic functions on the coordinate plane and use the graph to identify key attributes, if possible, including $x$-intercept, $y$-intercept, zeros, maximum value, minimum values, vertex, and the equation of the axis of symmetry |
| 10 | A7(A) graph quadratic functions on the coordinate plane and use the graph to identify key attributes, if possible, including $x$-intercept, $y$-intercept, zeros, maximum value, minimum values, vertex, and the equation of the axis of symmetry |

**Unit 7 STAAR Review**

| Item | TEKS |
|---|---|
| 1 | A7(B) describe the relationship between the linear factors of quadratic expressions and the zeros of their associated quadratic functions |
| 2 | A6(A) determine the domain and range of quadratic functions and represent the domain and range using inequalities |
| 3 | A7(A) graph quadratic functions on the coordinate plane and use the graph to identify key attributes, if possible, including $x$-intercept, $y$-intercept, zeros, maximum value, minimum values, vertex, and the equation of the axis of symmetry |
| 4 | A7(C) determine the effects on the graph of the parent function $f(x)=x^2$ when $f(x)$ is replaced by $af(x)$, $f(x)+d$, $f(x-c)$, $f(bx)$ for specific values of $a$, $b$, $c$, and $d$ |
| 5 | A6(C) write quadratic functions when given real solutions and graphs of their related equations |
| 6 | A11(B) simplify numeric and algebraic expressions using the laws of exponents, including integral and rational exponents |
| 7 | A10(E) factor, if possible, trinomials with real factors in the form $ax^2+bx+c$, including perfect square trinomials of degree two |
| 8 | A9(C) write exponential functions in the form $f(x)=ab^x$ (where $b$ is a rational number) to describe problems arising from mathematical and real-world situations, including growth and decay |
| 9 | A12(A) decide whether relations represented verbally, tabularly, graphically, and symbolically define a function |
| 10 | A5(C) solve systems of two linear equations with two variables for mathematical and real-world problems |

**Unit 7 Project**

| TEKS |
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| A6(B) write equations of quadratic functions given the vertex and another point on the graph, write the equation in vertex form ($f(x)=a(x-h)^2+k$), and rewrite the equation from vertex form to standard form ($f(x)=ax^2+bx+c$) |
| A7(A) graph quadratic functions on the coordinate plane and use the graph to identify key attributes, if possible, including $x$-intercept, $y$-intercept, zeros, maximum value, minimum values, vertex, and the equation of the axis of symmetry |
| A7(C) determine the effects on the graph of the parent function $f(x)=x^2$ when $f(x)$ is replaced by $af(x)$, $f(x)+d$,$f(x-c)$, f(bx) for specific values of $a$, $b$, $c$, and $d$ |