Math Scales for Quadratic Functions Unit Learning Goals

Scale for: Quadratic story via Anchor-Rule-Walk

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| Score 4.0 | Can write equation when vertex does not have integral coordinates or when given points only on one side of parabola.Can write equation given vertex and non-perfect table. |
| Score 3.0 | Can write a quadratic equation to correspond to a graph or a situation.Can write a quadratic equation from a practically perfect table. |
|  Score 2.0 | Can identify anchor, rule, and walk, but writes linear or exponential equationCan identify values for anchor, rule, and walk but is not yet proficient in equation writing.Makes sign error when determining the rule. |
| Score 1.0 | With help, partial success at score 2.0 and score 3.0 content |
| Score 0.0 | Even with help, no success |

Scale for: Multiple Representations of Functions

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| Score 4.0 | Can invent situation from some quadratic representation. Can write an equation to model imperfect quadratic data  |
| Score 3.0 | Can differentiate between linear, exponential, and quadratic functions in any representation.Can move fluently between representations: equation, graph, table, situation.Can articulate contextual meanings of anchor, rule, walk, vertex, y-intercept and x-intercept(s).Can answer contextual questions using correct landmark.Understands how to use calculator to find landmarks.Can move fluently between different representations of quadratic equations (i.e. Factored to standard) |
| Score 2.0 | Can move from one representation to another (table to graph, for example), but not fluently between all.Can use rule to develop table or graph, but not able to make all necessary connections between representations.Can articulate contextual meanings of some landmarks.Can move fluently between some representations of quadratic equations.Understands the process for changing forms, but can’t complete the task without errors. |
| Score 1.0 | With help, partial success at score 2.0 and score 3.0 content |
| Score 0.0 | Even with help, no success |

Scale for: Problem Solving for quadratic

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| Score 4.0 | Uses sophisticated math language/equations/tables/graphs to communicate solutionsShowing multiple ways to solve the problemDeveloping a unique method to solve.Relates the mathematical idea to other mathematical concepts |
| Score 3.0 | Incorporate multiple big ideas to solve a novel problemUses accurate math language/equations/tables/graphs to communicate solutions |
| Score 2.0 | Reasoning is only partially correct (or correct in only part of the problem) |
| Score 1.0 | With help, partial success at score 2.0 and score 3.0 content |
| Score 0.0 | Even with help, no success |

Scale for: Reasonable solutions/predictions

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| Score 4.0 | Can determine when a solution is non-real from vertex form equation and articulate reasoning.Given x-intercepts, can find vertex. |
| Score 3.0 | Can use multiple representations to find both output given input and input given output. Can explain how they know a solution is reasonable.Can work backwards from vertex or factored form of equation.Can use calculator to check and “zoom in” on solutions.Can determine when an exact answer is appropriate versus an approximate answer.Understands the relationship between the line of symmetry and the solutions to a vertex form equation (i.e. $x=5\pm \sqrt{3}$ means what graphically?) |
| Score 2.0 | Can use some representations to find both output given input and input given output.Understands the substitution part of solving an equation, but unable to arrive at correct solution.Can solve one and two step quadratic equations. |
| Score 1.0 | With help, partial success at score 2.0 and score 3.0 content |
| Score 0.0 | Even with help, no success |