Misconception/Error	Suggested Intervention
1. Not understanding parent functions.	• Explore graphs of functions and identify the key components for each parent graph. • Explore end behavior. • Give students many examples and non-examples of parent functions. • Use of computer software and/or graphing calculators to quickly analyze a variety of graphs.
2. Not identifying the relationship between factors and roots.	• Have students identify the roots from factored form of an equation and write the factored form of an equation given the roots. • Relate double roots to the graph of a perfect square trinomial. • Create a sorting and matching activity.
3. Incorrectly applying transformations.	• Use computer software and/or graphing calculators to explore how a function is transformed. • Have students create a table of values for a variety of leading coefficients and describe the graph. • Graph a variety of functions with translations, reflections, and dilations. • Match equations and graphs. • Demonstrate reflections and translations in equation and pictorial form.
4. Identification of the best-fit model as an exact fit; not understanding how the bounds of the model relates to the context.	• Have students identify the limitations of the model in terms of extrapolation. • Discuss implied domain restrictions of the model. • Explain the model by explicitly describing the model in terms of the real-life context.

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	• Have students extend the problem by sketching a model for temperature for the entire year – lead a discussion about why predicting based on a monthly model would be more appropriate.
5. Incorrect identification of regions that are increasing or decreasing.	• Provide multiple opportunities to practice set-builder notation. • Draw vertical lines through the critical points to focus attention on the domain. • Relate the range of the graph (and by extension the areas where the function increases or decreases) to the dependent variable. Since these values depend on the domain, they must be stated in terms of the domain.
6. Incomplete description of the function	• Provide students multiple opportunities to describe key characteristics for a variety of functions. • Divide students into groups of 2 – give one student a picture of a function, have them verbally describe the function while the second student describes what they heard; compare the final picture with the initial function. • Have students draw a graph based on predefined characteristics.