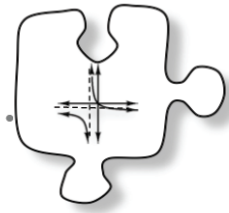## 2.2.2 What is the significance of (h, k)?

Describing (h, k) for Each Family of Functions

#51 Think about the parent function for parabolas, $y = x^2$.

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a. Write the equation of a parabola that will be the same as the parent graph, but shifted 4 units to the right.

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b. Does the strategy you used to translate parabolas horizontally also work for other parent graphs? Justify your answer.

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c. You have learned that the graphing form for a parabola is $y = a(x-h)^2 + k$. To translate the graph of $y = x^2$ right h units, you replaced x^2 with $(x-h)^2$. Work with your team to justify why replacing x with $(x-h)$ translates a graph to the right. Think about multiple representations as you discuss this and be prepared to share your ideas with the class.

#52 With your team, brainstorm a list of all of the families of functions that you have learned about so far.

#54 What is the parent function for the graph of a line? Use what you have learned about transforming parent graphs to write the graphing form of a line.

a. Use this graphing form of a line to write the equation of a line with slope $\frac{4}{5}$ that passes through the point (3,9).

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b. Write the equation of a line that passes through the points (-1, 5) and (8, -2) in graphing form.