

You Sank My Battleship

Lesson Plan

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Teacher Mentor: Kimberly Halsey

Goal: To have students demonstrate their knowledge of transformations of graphs and how their equations relate to the graphs.

Grade and Course: 10th and 11th grades – Algebra II

KY Standards: MA-HS.5.1.5

Objectives: Students should demonstrate an understanding of transformations by creating equations for graphs and by creating graphs from equations

Resources/materials needed: Worksheets.

Description of Plan: Start by giving an example of creating a graph from student selected a , h , and k values for some parent graph. Then ask the students if they can recreate the equation by looking at the graph. Have the students pair up and pass out the “You Sank My Battleship” worksheet. Have them follow the instructions and alternate who sketches the graph to the person whom recover the equation from the graph. I recommend limiting a -values to those with absolute value of a half, one, or two. To make the lesson more game like, after the player interpreting the graph gives a correct value for a , h , or k , say “hit”. Count up the total number of graphs “sunk” by each player to find the winner of the game. Float through the room to settle disagreements and to check for accuracy.

Lesson Source: Original lesson.

Instructional Mode: Interactive lecture, group activity.

Date Given: 02/19/2009

Estimated Time: One class period.

Date submitted to Algebra³: 03/26/2009

Name: _____

You Sank My Battleship

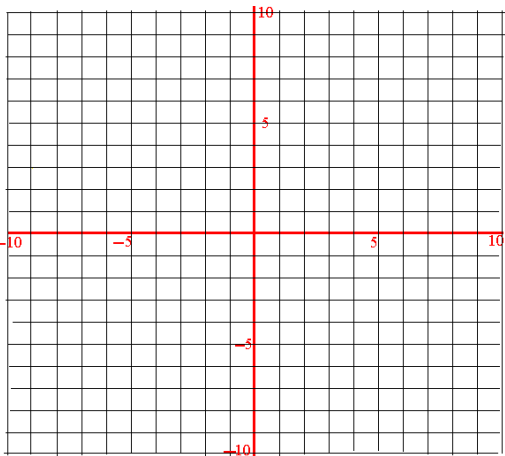
Determining Equations from Graphs.

How to play: Player 1 writes down an equation on his/her "You Sank My Battleship" sheet for one of the families of graphs. (i.e. $y = a(x - h)^3 + k$ for a cubic). Take note of the values for a , h , and k . Next, sketch the graph for your equation on one of the 10x10 grids on the graph paper. Now, give Player 2 the graph paper.

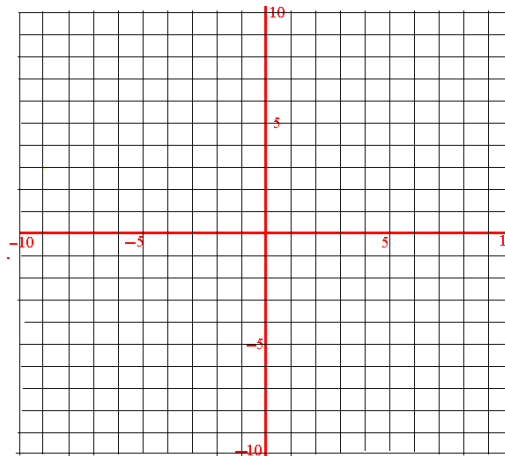
Player 2 looks at the sketch of the graph and has to determine what the equation was. Remember to take into account vertical and horizontal shifts, reflection, and skinniness (remember fat fractions). Write down the value for a , h , and k beneath the graph, and then write the equation for the graph. Have Player 1 check your answer. Now switch Players and repeat. Remember to use different parent graphs (quadratic, cubic, absolute value, and square root).

	Family of Graph	Equation	a	h	k
1)					
2)					
3)					
4)					
5)					
6)					
7)					
8)					

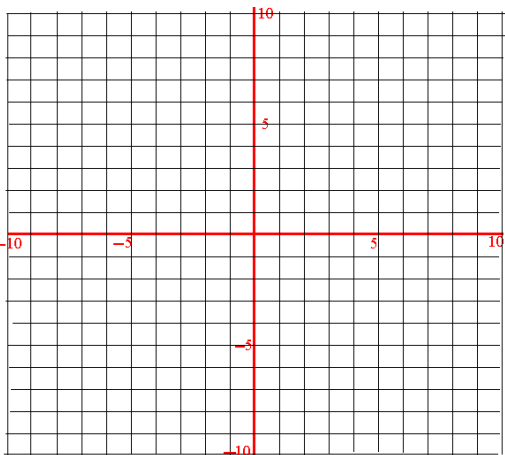
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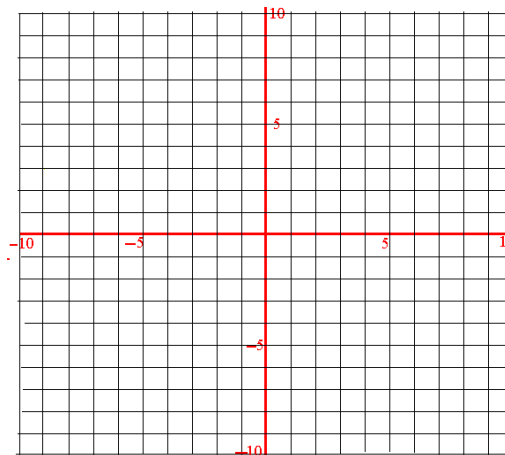
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y =



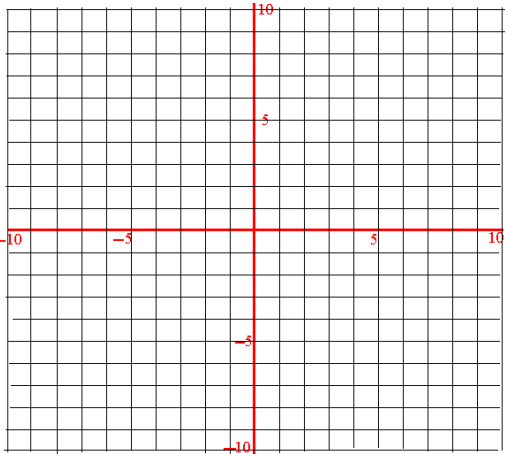
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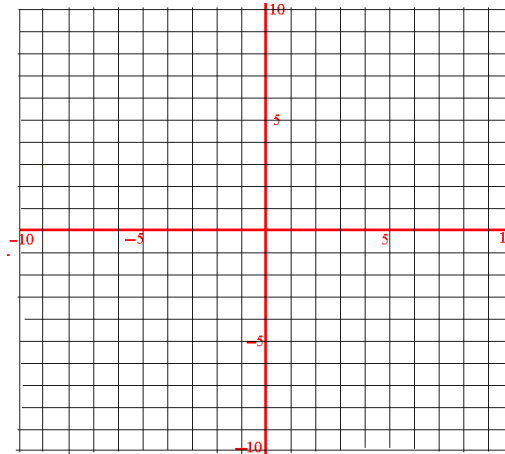
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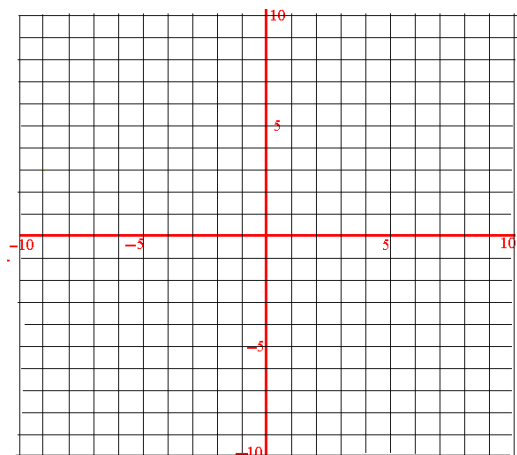
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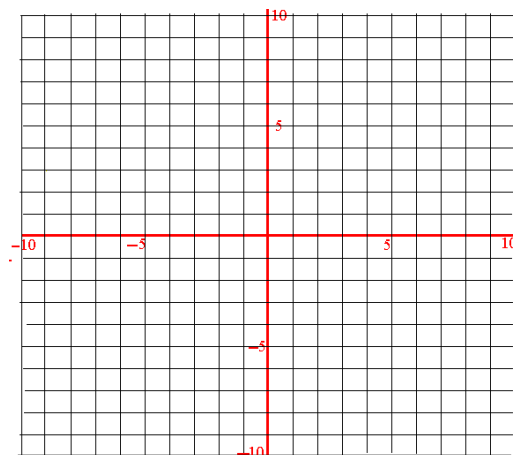
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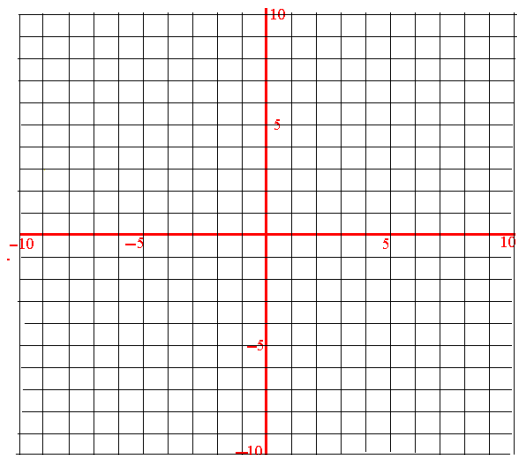
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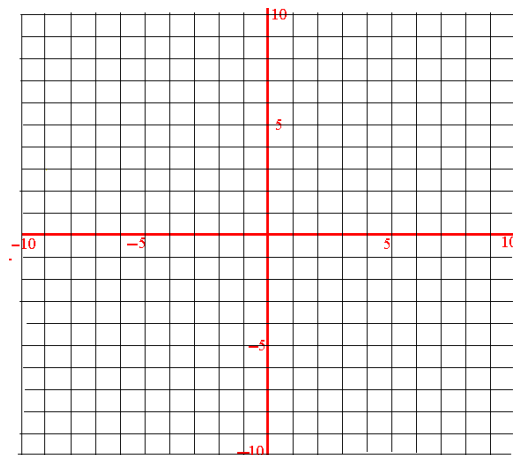
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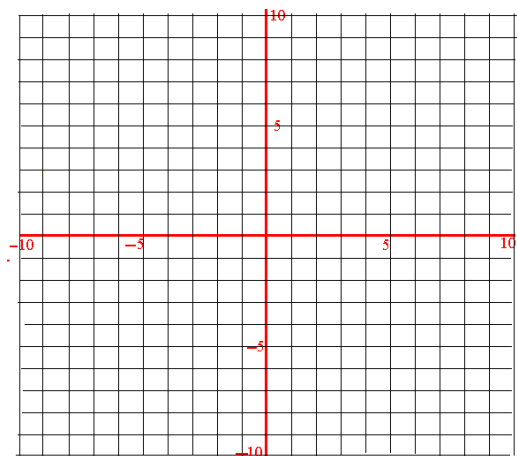
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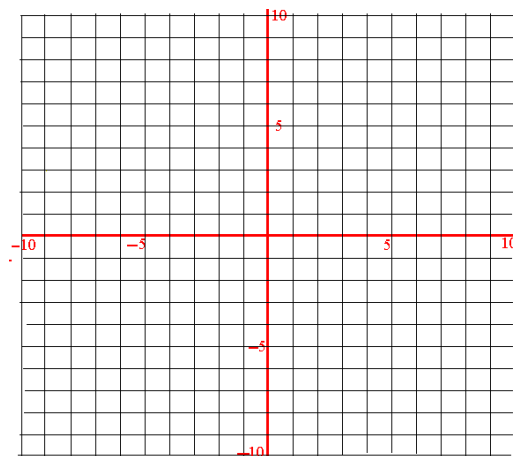
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a = _____ **h =** _____ **k =** _____
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a = _____ **h =** _____ **k =** _____
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