Marble roll quadratic graphing leading to a Qalculate! computer graphing exercise

Use your marble roll data from yesterday.

k = \_\_\_\_\_ r = \_\_\_\_

The equation of the marble roll curve is:

$$y = \frac{-k x^2}{r^2} + k$$

In the following example r was 7.5 cm and k was 18 cm. Your numbers will **differ**, as will your specific equation. Use your own k and r values!

Terminology:

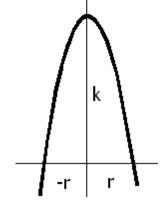
Parabola:	The curve made by a second degree equation, by an
	quadratic function.

- **y-intercept**: Where the graph crosses the y-axis. Often a starting value (accelerated ball roll, ball drop data).
- **x-intercepts**: Where the graph crosses the x-axis. Also called roots, solutions, zeros of the function.

**Vertex**: The topmost (or bottommost) point in the parabola.

1. The Qalculate! calculator is on the <b>Accessories</b> submenu of the <b>Application</b> menu. Enter the equation as seen below with the appropriate <b>parentheses</b> .	2. Click on the button to the right of the data entry window to process the equation.
	Qalculate!
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Equation format in Qalculate!: -( \_\_\_\_ ( \_\_\_^2))\*x^2+ \_\_\_\_ k



3. From the File menu, select Plot	4. The plot window will open automatically.			
Function/Data.				
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<ul><li>5. Click on the Function Range tab and set your min to one less than your negative root, your max to one more than your positive</li><li>6. Return to the data tab (seen above, and click on the +Add button. The graph of you marble will appear.</li></ul>				
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Data Function Range Appearance				
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Max 8.5	10			
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Image: Save       Image: Save       Image: Save       Image: Save	-			
	the measurements made for your marble? Does the curve look like your marble roll curve?			