6. [5 points] Let $f(x) = -4x^2 + 12kx - 17$. Use the method of completing the square to rewrite this function in vertex form and then give the coordinates of the vertex.
Show your work step-by-step. Note: Your answers may involve the constant k.

Vertex form: _____

Vertex: _____

7. [10 points] Consider the function q defined by $q(x) = \begin{cases} 3(0.75)^x & \text{if} \quad x \leq -1 \\ 2(x+1)^2 - 8 & \text{if} \ -1 < x < 2 \end{cases}$

    a. [2 points] Evaluate $q(q(0))$.

    b. [4 points] Sketch a graph of $y = q(x)$. Carefully label your axes and important points on your graph (including intercepts).

    c. [4 points] Find the domain and range of q. (Use either interval notation or inequalities.)

    Domain: _____   **Range:** _____