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 \( k \).*

\[
\text{Vertex form: } \quad \text{Vertex: }
\]

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

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.)

\[
\text{Domain: } \quad \text{Range: }
\]