**Key Functions:** \( f(x) = x^2 \)  

Quadratic

\( f(x) = x^2 \)

I. Describe the transformation to the graph. List the domain and range using interval notation.

a) \( y = -x^2 \)

b) \( y = (x + 2)^2 \)

c) \( y = 2x^2 - 3 \)

d) \( y = (x - 1)^2 + 4 \)

e) \( y = -(x + 3)^2 + 2 \)

*Is the function one to one?

* Does the function have a minimum? A maximum?

*Use interval notation to list the function’s:

**Domain:**

**Range:**
II. Simplify each expression given $f(x) = x^2$
   a) $f(4)$
   b) $f(-7)$
   c) $f(m + 5)$
   d) $\frac{f(4 + h) - f(4)}{h}$

III. Solve each equation for all values of $x$ given that $f(x) = x^2$ and $g(x) = 3x^2 - 6x - 5$.
   a) $f(x) = 9$
   b) $f(x) = -20$
   c) $f(x) = g(x)$

IV. Write the function for each graph.
   a) [Graph image]
   b) [Graph image]
   c) [Graph image]