Functions worksheet 5

1. Graph the function:

$$f(x) = \begin{cases} -x & \text{if } x \leq 0 \\ x^2 & \text{if } x > 0 \end{cases}$$

2. Find the inverse of $f(x)$, and label it $g(x)$. What are the domain and range of $f(x)$ and $g(x)$?

(a) $f(x) = x^2 + 1$, where $x > 0$

(b) $f(x) = 4\ln(x + 3)$

3. Find the inverse of $f(x)$:

$$f(x) = \begin{cases} -x & \text{if } x \leq 0 \\ x^2 & \text{if } x > 0 \end{cases}$$

4. Graph the equations. Put (a) and (b) on the same graph over quadrant 1, and (c) and (d) on the same graph over all four quadrants. For this problem, using specific numbers for x and marking the associated value(s) of y on the graph will be helpful.

(a) $x\sqrt{y} = 2$

(b) $x\sqrt{y} = 6$

(c) $x^2 + y^2 = 16$

(d) $x^2 + y^2 = 25$