Precalc – Chapter 1 Review Do Now　　　　　　　　　　　Name_____

1. Give the domain of a) $f(x) = \dfrac{\sqrt{x+3}}{x+1}$　　b) $g(x) = \dfrac{x+1}{\sqrt{x+3}}$　　　　　(use interval notation).

2. Give the domain and range of the relation, as well as any increasing, decreasing, and constant intervals using the diagram at the right. Use interval notation.

3. For the function $f(x) = -x^2 - 2x + 9$, find the difference quotient $\dfrac{f(x+h) - f(x)}{h}$, $h \neq 0$

4. If $f(x) = \begin{cases} -x - 3 & \text{if } x \leq -2 \\ x^2 + 1 & \text{if } x > -2 \end{cases}$, $g(x) = x + 3$, and $h(x) = 4|x - 3|$

　　　find　a) $f\left(-\dfrac{5}{2}\right)$　　　　　　　b) $h\left(-\dfrac{1}{2}\right)$　　　　　　　c) $f\left(g\left(-\dfrac{5}{2}\right)\right)$