Name: _____

College Algebra: Quiz #9 (Solutions)

1. Evaluate the function

$$f(x) = \begin{cases} 4x - 2 & \text{if } x \geq 4 \\ \dfrac{1}{x^2 - 3} & \text{if } x < 4 \end{cases}$$

at $x = 8$, $x = 1$, and $x = -2$.

Solution: This is a *piecewise defined* function, so remember that before we can evaluate f at a particular x we have to test x against the guards.

First we'll find $f(8)$. Since $8 \geq 4$, we use the first branch of f. So

$$f(8) = 4 \cdot 8 - 2 = \boxed{30}.$$

Next we'll find $f(1)$. Since $1 < 4$, we use the second branch of f. So

$$f(1) = 4 \cdot 1 - 2 = \boxed{2}.$$

Finally, we'll find $f(-2)$. Since $-2 < 4$, we use the second branch of f. So

$$f(-2) = 4 \cdot (-2) - 2 = \boxed{-10}.$$