QUIZ 2: **NAME:**_____

1) Negate the following:
   a) $(\forall x \in A)(\exists b \in B)(b > x)$
   b) $(\forall x, y \in \mathbb{R}, x > 0)(\exists m \in \mathbb{R})(xy = m - \frac{1}{2}x)$

2) Find the flaw in the following argument:
   Let x, y be real numbers and suppose that $x = y$. This yields $x^2 = xy$, which implies $x^2 - y^2 = xy - y^2$ when y^2 is subtracted from both sides. Factoring yields $(x + y)(x - y) = y(x - y)$, and thus $x + y = y$. Now in the special case $x = y = 1$, we obtain $2 = 1$.

3) Use truth tables to verify the following are true:
   a) $Q \wedge \neg Q \implies P$
   b) $P \vee Q \iff (\neg P \implies Q)$