**Quiz 21**                                                                                    Name:   Answer Key.

***You must show your work to get full credit.***

**1.** Let $R$ be the relation $R = \{(1,1),(2,2),(3,3),(1,3),(3,1)\}$ be on the set $A = \{1,2,3\}$.

(a) Is this relation reflexive?   Yes    If not why not.

(b) Is this relation symmetric?   Yes    If not why not.

(c) Is this relation transitive?   Yes    If not why not.

**2.** On the integers, $\mathbb{Z}$, define a relation $R$ by $xRy$ if and only if $|x - y| \leq 2$.

(a) Is this relation reflexive?   Yes    If not why not.

(b) Is this relation symmetric?   Yes    If not why not.

(c) Is this relation transitive?   No    If not why not.

We have $0R2$ and $2R4$, but $0\not\!R4$.