Properties of Relations

- Read carefully pages 193 through 196 (section 8.2)
- Some key questions to answer:

    1. When do we say that a relation R on a set A is *reflexive*?
    2. Are the relations "is less than" and "is less than or equal to" in the real numbers reflexive?
    3. Is the empty relation reflexive? What if the set A is the empty set?
    4. Is the full relation (everything related to everything) reflexive?
    5. When do we say that a relation is *symmetric*?
    6. Is the empty relation symmetric? Is the full relation symmetric?
    7. Are the relations "is less than" and "is less than or equal to" in the real numbers symmetric? Can you think of a relation on the real numbers that is symmetric?
    8. True or False: If a relation is reflexive then it has to be symmetric.
    9. True or False: If a relation is reflexive then it cannot be symmetric.
    10. True or False: If a relation is symmetric then it has to be reflexive.
    11. True or False: If a relation is symmetric then it cannot be reflexive.
    12. When is a relation called *transitive*?
    13. Is the empty relation transitive? Is the full relation transitive?

- Practice problems from section 8.2 (page 210): 8.11, 8.13, 8.14, 8.15, 8.17, 8.18
- Challenge: 8.20