Calvin Chen
Module 6 Self Check

1.
    a. FAIL, because the two expressions are not equal constants
    b. {}. Empty set because the two inputs are equal
    c. { x / Fred }
    d. { x / Bam-Bam , y / Barney }
    e. {x / Barney , y / Wilma }
    f. { x son(Barney), y / Barney }
    g. { y / Barney , x / son(Barney) }
    h. FAIL, see below
    i. { x / Fred }
    j. FAIL, y cannot be Fred and George

2. (son Barney ?x) and (son ?y (son Barney))
    From previous step, we use ?x = Bam-Bam

    Unify(son(Barney, ?x),(son(?y (son Barney)), {})
    Unify([Barney, ?x], [(?y (son(Barney)], Unify(son, son))
    Unify(son, son) = {}
    #possible failure if not both son
    Unify([Barney, ?x], [(?y (son Barney)], {})
    Unify([?x], [son(Barney)], Unify(Barney, ?y), {})
    Unify(Barney, ?y) = { y / Barney}
    # possible failure if Barney or y already in KB and assigned differently
    Unify([?x], [son(Barney)], { y / Barney})
    Unify([], [], Unify(?x, son(Barney), { y / Barney }))
    Unify(?x, son(Barney), { y / Barney }) = {x / son(Barney) }
    # possible failure if son(Barney) already assigned to different variable or y already assigned content
    Unify([], { y / Barney}), {x / son(Barney) })
    Return ({y / Barney} {x / son(Barney)})