Homework #1

2.2.3

a) 3 attributes, 3 tuples. 3! \* 3! = 3\*2\*1\*3\*2\*1 = 6 \* 6 = 36

there are 3! ways to order the attributes and there are 3! ways to order the tuples, therefore there is 3! \* 3! ways to of ordering which equals 36

b) 4 attributes, 5 tuples. 4! \* 5! = 4\*3\*2\*1\*5\*4\*3\*2\*1 = 24 \* 120 = 2880

there are 4! ways to order the attributes and there are 5! ways to order the tuples, therefore there is 4! \* 5! ways to of ordering which equals 2880

c) n attributes and m tubles. n! \* m!

2.4.1

a) πmodel(speed>=3.0(PC))

b) πmaker(Product⋈hd>=100(Laptop))

c) πmodel, price(maker=”b”(Product) ⋈ (πmodel, price(Laptop) U πmodel, price(PC) U πmodel, price(Printer)))

d) πmodel(color=”true”(type=”laser”(Printer)))

e) πmaker(type=”laptop”(Product)- type=”pc”(Product))

f) PC1(model1, speed, ram, hd1,price)

πhd(PC⋈hd==hd1 and model != model1 PC1)

2.5.1

a) speed<2.0 and price>500(PC) = 0

b) screen<15.4 and hd<100 and price>=1000(Laptop) = 0

c) πmaker(type=”pc”(Product)) ∩ πmaker(type=”laptop”(Product)) = 0