Will Gasser M9 Hw

9.1.1

a.) $\binom{6}{1}\binom{5}{1}\binom{4}{1}(= 6! =$ **720**

b.) $\binom{8}{2}\binom{6}{1} = 6! =$ **20,160**

c.) $\binom{7}{3}(4!) =$ **840**

9.1.3

a.) $\binom{52}{13}\cdot\binom{39}{13}\binom{26}{13} =$ **$5.36 \cdot 10^{28}$**

b.) $\binom{52}{7}\binom{45}{7}\binom{38}{7}\binom{31}{7} =$ **$2.01 \cdot 10^{29}$**

9.2.2

a.) $6+15-1 = 20$ $6-1=5$ $\binom{20}{5} =$ **15,504**

b.) $\binom{17}{5} =$ **6188**

c.) $\binom{16}{5} = 4368$ $15504 - 4368 =$ **11,136**

d.) $\binom{14}{5} \rightarrow 6188 - 2002 =$ **4186**

9.2.4

a.) $\binom{28}{3} =$ **3276**

b.) $\binom{23}{3} =$ **1771**

c.) $3276 - \binom{18}{3} =$ **2910**

9.3.1

a.) $\boxed{1}$ — indistinguishable way

b.) $m^n = 3^{60} = \boxed{4.239 \cdot 10^{28}}$

c.) $60C25 \cdot 35C30 \cdot 15C15 = \boxed{1.685 \cdot 10^{22}}$

9.3.5

a.) $\binom{34}{10,24} = \boxed{131,128,140}$

b.) $25P10 = \boxed{11,861,676,288,000}$

9.5.1

a. $4374 + 2187 + 4374 = \boxed{10,935}$

b. 5

c. 15

d. $2187 \cdot 3 + (4374 \cdot 2) = \boxed{15,309}$

9.5.2

a. $2^{10} - 1 = \boxed{1023}$

b. $2^{10} - 2 = \boxed{1022}$

c. $(10C5) - (9C5) + 2^9 = \boxed{638}$

9.6.1

a.) $\binom{7}{4} -3^3 \cdot 4^4 =$ **-241,920**

b.) $\binom{9}{7} \cdot 5^2 \cdot -1 =$ **-900**

c.) $\binom{8}{3} 3^5 \cdot -4^3 =$ **-870912**

d.) $7 \cdot -2^6 \cdot -5 =$ **-2,240**

9.6.2

a. $3+-1 =$ **2^n**

b. $2+1 =$ **3^n**