Math 1116, Quiz #4, Spring 2013 Name KEY

Instructions: Show all work for full credit.

1. Consider the weighted voting system [28: 21, 18, 12, 3].
   a. Calculate the Bazhaf power distribution for this system.

{P1, P2, P3, P4}
{P1, P2, P3}
{P1, P2, P4}
{P1, P3, P4}
{P2, P3 P4}
{P1, P2}
{P1, P3}
{P2, P3}

Critical players: 12

P1: $\frac{4}{12} = 33\%$

P2: $\frac{4}{12} = 33\%$

P3 = $\frac{4}{12} = 33\%$

P4 = $\frac{0}{12} = 0\%$ dummy, no veto power

   b. Calculate the Shapley-Shubik power distribution for this system.

<P1, P2, P3, P4>
<P1, P2, P4, P3>
<P1, P3, P2, P4>
<P1, P3, P4, P2>
<P1, P4, P2, P3>
<P1, P4, P3, P2>
<P2, P1, P3, P4>
<P2, P1, P4, P3>
<P2, P3, P1, P4>
<P2, P3, P4, P1>
<P2, P4, P1, P3>
<P2, P4, P3, P1>
<P3, P1, P2, P4>
<P3, P1, P4, P2>
<P3, P2, P1, P4>
<P3, P2, P4, P1>
<P3, P4, P2, P1>
<P3, P4, P1, P2>
<P4, P1, P2, P3>
<P4, P1, P3, P2>
<P4, P2, P1, P3>
<P4, P2, P3, P1>
<P4, P3, P1, P2>
<P4, P3, P2, P1>

P1: $\frac{8}{24} = 33\%$

P2: $\frac{8}{24} = 33\%$

P3: $\frac{8}{24} = 33\%$

P4 = $\frac{0}{24} = 0\%$