Problem Set 8

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1) Cost = 1,000,000c

2) Cost = c + 999,999c'

3) Make V(W,c) = 10,000

a. If clustered, B(W)/V(W,c) = 1. Otherwise, T(W)/V(W,c) = 1

b. 1, because c is a primary key.

4)

a. If clustered, B(R)/(V(R,a)*V(R,b)*V(R,c)) = 1. Otherwise, T(R)/(V(R,a)*V(R,b)*V(R,c)) = 1,000,000 / (100 * 200 * 50) = 1

b. 1, because (c,b,a) is a primary key.

5)

a. If clustered, B(R)/(V(R,b)*V(R,c)) = 1000/(200*50) = 1 or 2 (it's 2 when it doesn't occupy a whole block). Otherwise, T(R)/(V(R,b)*V(R,c)) = 1,000,000 / (200 * 50) = 100

b. T(R)/(V(R,b)*V(R,c)) = 100

6)

a. 10,000 / (20 * 10) = 50

b. 10,000 * (1 / 20 + 1 / 10 - 1 / 20 * 1 / 10) = 1450

7) $|R| * |S|/max(V(R,a), V(S,a)) = 10,000,000$

8) $|R| * |U|/max(V(R,b), V(U,b)) = 25,000,000$

9) 0

10) $|R \bowtie S| * |U| * |V|/max(V(R,b), V(U,b))/max(V(R,c), V(V,c)) = 10,000,000 * 10,000 * 100/400/100 = 250,000,000$

11) $|V| * |W|/max(V(V,c), V(W,c)) = 100 * 10,000/100 = 10,000$

12) $|R|*|W|/max(V(R,b), V(W,b))/max(V(R,c), V(W,c)) = 1,000,000*10,000/200/50 = 1,000,000$