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Sheet 2

(1) a) Matrix Mult

```
for i,j,k = 1 .... n  do in parallel
    C[i,j,k] = A[i,k] x B[k,j]
end for

for l = 1 .... log n do
  for i,j = 1 .... n & k = 1 .... n/2
    if (2k modulo 2) == 0 then
        C[i,j,2k] = C[i,j,2k] + C[i,j,2k-2^(l-1)]
    end if
  end for
    C[i,j,n]  where 1 ≤ i,j ≤ n   # outputs
end for
```

b) No the solution would be the same

c) Yes cost optimal $T(n) = O(\log n)$

$P(n) = n^3$

Cost = $O(n^3 \log n)$

(2) let $n = 2^k$

PRAM(A[1...n], X):

A[1] = X;

for i = 1 .... K:

for $2^{(i-1)} \leq j \leq 2^i - 1$ do in parallel

$A[j] = A[j - 2^{(i-1)}]$

end for

end for

end