**HW1**

**Problem 1**

**a.** Ts=2mn

**b.** Tp=mp+2mn/p

**c.** Sp=2mn/(mp+2mn/p)

alpha(n,p)=p^2/2n(p-1)

**d.** When n->∞, obviously alpha(n,p)->0 so the algorithm is effective.

**Problem 2**

**Runtime for pi.c**:

12.798u 0.000s 0:12.80 99.9% 0+0k 0+0io 0pf+0w

**Runtime for pi2.c**:

**One Processors:**

13.627u 0.000s 0:13.63 99.9% 0+0k 0+0io 0pf+0w

**Four processors**:

15.831u 0.070s 0:03.98 399.4% 0+0k 0+0io 0pf+0w

**Eight Processors**:

20.591u 0.519s 0:02.68 787.3% 0+0k 0+0io 0pf+0w

**Runtime for pi1.c:**

**One processors:**

13.403u 0.000s 0:13.40 100.0% 0+0k 0+0io 0pf+0w

**Four processors:**

13.341u 0.003s 0:03.35 398.2% 0+0k 0+0io 0pf+0w

**Eight Processors:**

13.393u 0.007s 0:01.68 797.0% 0+0k 0+0io 0pf+0w

**Dynamic One Processors:**

44.064u 0.001s 0:44.07 99.9% 0+0k 0+0io 0pf+0w

**Dynamic Four Processors:**

502.581u 0.144s 2:05.70 399.9% 0+0k 0+0io 0pf+0w

**Dynamic Eight Processors:**

1061.488u 0.150s 2:13.03 798.0% 0+0k 0+0io 0pf+0w.

**Runtime for multdot.c:**

**One Processor:**

2.352u 1.439s 0:03.80 99.4% 0+0k 0+8io 0pf+0w

**Four Processors:**

2.479u 1.140s 0:01.07 337.3% 0+0k 0+16io 0pf+0w

**Eight Processors:**

2.869u 2.562s 0:00.77 703.8% 0+0k 0+0io 0pf+0w

**Problem 3**

**Parta:**

**One Processors:**

430657ms

**Four Processors:**

118182ms

**Eight Processors:**

65528ms

**Partb:**

**One Processor:**

498623ms

**Four Processors:**

119656ms

**Eight Processors:**

114011ms