**Exercise**

1.For 1000 tasks, each task takes 20 ns to complete in non-pipelined system. In pipelined system a task would take 10,20,30 and 20 ns each in four segments. Calculate how much pipeline system is faster.

Here,

n = 1000

tn = 20ns

tp = max(10,20,30,20)

k = 4

so,

speedup = n\*tn/(k+n-1)tp

= (1000\*20)/(4+1000-1)30

= 0.66

2. For 1000 tasks, each task takes 70 ns to complete in non-pipelined system. In pipelined system a task would take 10,20,30 and 20 ns each in four segments. Calculate how much pipeline system is faster.

Here,

n = 1000

tn = 70ns

tp = max(10,20,30,20)

k = 4

so,

speedup = n\*tn/(k+n-1)tp

= (1000\*70)/(4+1000-1)30

= 2.32

3.Suppose time delays of four segments are t1 = 60ns , t­2 = 70ns , t3 = 100ns , t4 = 80ns and interface register have a delay of 10ns. Determine the speedup.

Here,

tn = 60 + 70 + 100 + 80 = 310

tp = max( 60 , 70 , 100 , 80 ) +10 = 110

so,

speedup = tn / tp

= 310/110

= 2.82

Floating point addition and subtraction:

1. x = 2.5 x107

+ y = 3.36x106

2.836x107

2. 1.2367x109

+ 11.3526x1011

1.1364967x1012