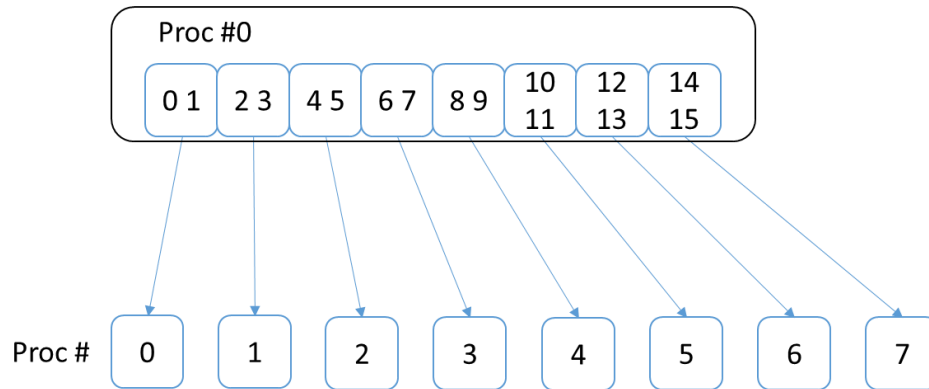**HPC_HW_Chap3_PartB**
Chen Fang

Problem 3.8
MPI_Scatter is shown in the figure. MPI_Gather is the same by reversing the arrow directions.
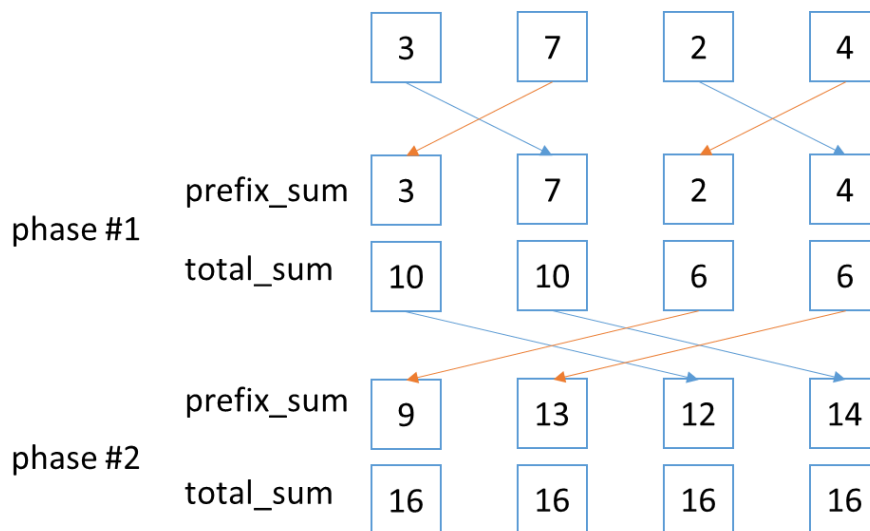

Problem 3.11
a.
```
for( int i = 1; i < n; ++i )
{
    vector[i] += vector[i-1];
}
```

b.

c.
In general case when n>p, n/p elements can be assigned to one core while the above algorithm is used.

It can be easily proved with induction that the number of phases equals $\log_2(n)$. Therefore, when $n=2^k$, phase number = k.

Problem 3.16