If you use the codes here, you should still do two important things:
1) make sure you know how the code works and
2) explain your answer as if you did not have a computer

Pascal's Triangle

In [1]:
```
function A(n)         # Pascal Matrix
    p=zeros(Int,n,n) # Int may be omitted to work with floats
    p[:,1]=1
    for i=2:n, j=2:i,
        p[i,j]=p[i-1,j-1]+p[i-1,j]
    end
    p
end

function Ake(n,k)   # A^k * e
    A(n)^k * ones(Int,n)
end
```

In [2]:
```
P=A(6)
```

In [3]:
```
[ Ake(6,j) for j=1:8]
```

Find a permutation matrix

In [4]:
```
rand_perm_matrix(n)=eye(n)[:,randperm(n)]

function order(P)
    n=size(P,1)
    k=1
    while (P^k != eye(n))
        k+=1
    end
    k
end
```

Out[4]: order (generic function with 1 method)

In [5]:
```
function find_perm(n,k)
    while(true)
      P = rand_perm_matrix(n)
      if order(P)==k; return(P); end
    end
end
```

Out[5]: find_perm (generic function with 1 method)

In [6]:
```
find_perm(5,3)
```