In [13]:
```
import math

def fact(n):
    if (n <= 1):
        return 1

    return n * fact(n - 1)
```

In [14]:
```
## Permutation
def nPr(n, r):

    return math.floor(fact(n) / fact(n - r))
```

In [8]:
```
n = 8
r = 3
nPr(n,r)
```

Out[8]: 336

In [15]:
```
## Combination
def nCr(n, r):

    return math.floor(fact(n) / (fact(n - r)*fact(r)) )
```

In [16]:
```
# Driver code
n = 48
r = 6

print("nCr =", nCr(n, r))
```

```
nCr = 12271512
```

In [21]:
```
print("Probability =", "{0:.20f}".format(1/nCr(n, r)))
```

```
Probability = 0.00000008148955075789
```

In [22]:
```
# Driver code
n = 42
r = 1

print("nCr =", nCr(n, r))
```

```
nCr = 42
```

In [7]:
```
# Driver code
n = 6
r = 5

print("nCr =", nCr(n, r))
```

```
nCr = 6
```

In [23]:
```
print("Probability =", "{0:.20f}".format(nCr(42,1)*nCr(6,5)/nCr(48, 6)))
```

```
Probability = 0.00002053536679098713
```

In [24]:
```
print("Probability =", "{0:.20f}".format(42*6/nCr(48, 6)))
```

```
Probability = 0.00002053536679098713
```

In [ ]:

In [ ]: