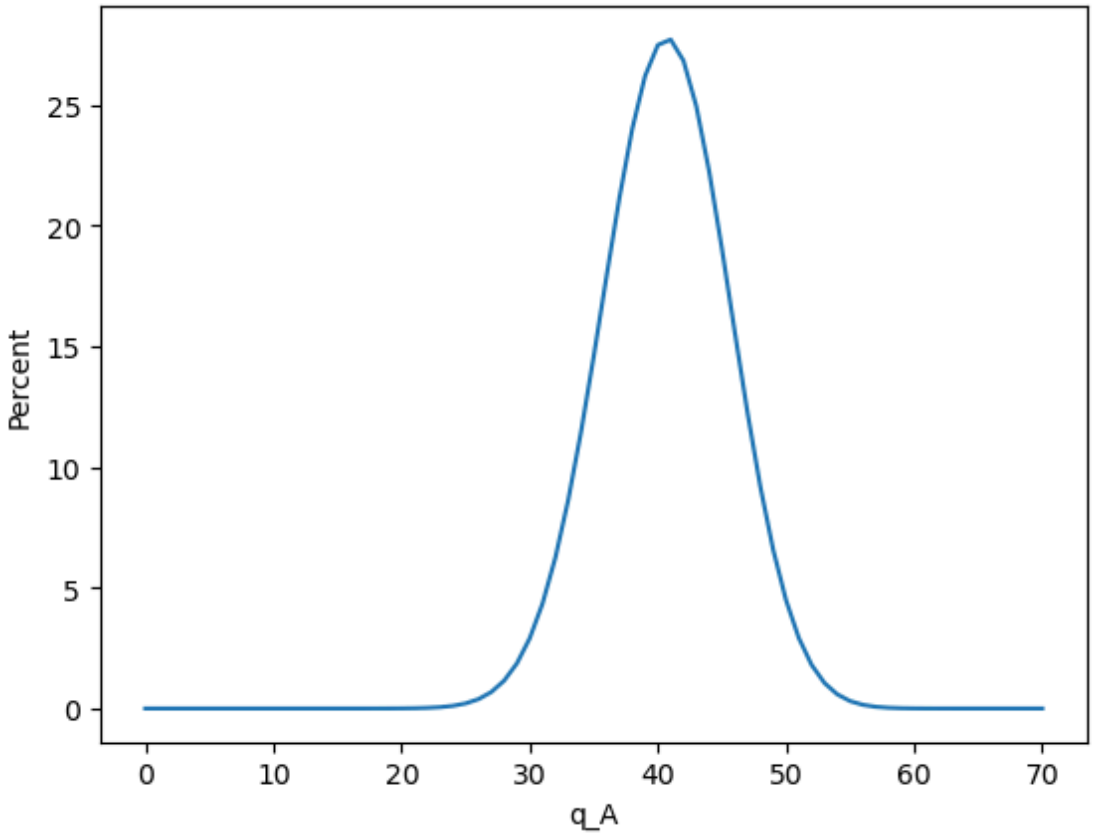
In [86]:
```
import math
import numpy as np
import matplotlib.pyplot as plt

NA = 100
NB = 75

Omega_A_vals = []
Omega_B_vals = []

for i in range(0, 71, 1):
    Omega_A = np.math.factorial(i+NA-1)/(np.math.factorial(i)*np.math.fact
    Omega_A_vals.append(Omega_A)
    Omega_A_vals_array = np.array(Omega_A_vals)
    #print(f'q = {i}; Omega_A = {Omega_A}')
for j in range(71, 0, -1):
    Omega_B = np.math.factorial(j+NB-1)/(np.math.factorial(j)*np.math.fact
    Omega_B_vals.append(Omega_B)
    Omega_B_vals_array = np.array(Omega_B_vals)
    #print(f'q = {j}; Omega_B = {Omega_B}')

Omega_tot = Omega_A_vals_array*Omega_B_vals_array


TOT = np.math.factorial(70+NA+NB-1)/(np.math.factorial(70)*np.math.factori

probs = (Omega_tot/TOT)*100
#probs
#Omega_tot
```

Out[86]:
```
array([1.56523611e-18, 7.66425956e-17, 1.88146927e-15, 3.08666218e-14,
       3.80615878e-13, 3.76188857e-12, 3.10355807e-11, 2.19768912e-10,
       1.36320426e-09, 7.52249944e-09, 3.73801847e-08, 1.68903057e-07,
       6.99561168e-07, 2.67362649e-06, 9.48211472e-06, 3.13561229e-05,
       9.70833805e-05, 2.82440478e-04, 7.74504747e-04, 2.00735710e-03,
       4.92917689e-03, 1.14920238e-02, 2.54863432e-02, 5.38555530e-02,
       1.08593984e-01, 2.09218426e-01, 3.85578830e-01, 6.80433229e-01,
       1.15080535e+00, 1.86679418e+00, 2.90640542e+00, 4.34534107e+00,
       6.24166316e+00, 8.61680931e+00, 1.14362800e+01, 1.45948716e+01,
       1.79118879e+01, 2.11407355e+01, 2.39945288e+01, 2.61852586e+01,
       2.74698184e+01, 2.76931503e+01, 2.68182293e+01, 2.49350798e+01,
       2.22460026e+01, 1.90302438e+01, 1.55965259e+01, 1.22345410e+01,
       9.17590578e+00, 6.57159337e+00, 4.48785064e+00, 2.91779763e+00,
       1.80273094e+00, 1.05625623e+00, 5.85533345e-01, 3.06278980e-01,
       1.50708705e-01, 6.95167295e-02, 2.99368675e-02, 1.19794128e-02,
       4.42959681e-03, 1.50358542e-03, 4.64818073e-04, 1.29605039e-04,
       3.22036912e-05, 7.02181148e-06, 1.31658965e-06, 2.06455585e-07,
       2.60015707e-08, 2.46655216e-09, 1.56709517e-10])
```

In [98]:
```
x = np.linspace(0, 70, 71)

plt.figure()
plt.plot(x, probs)
plt.xlabel('q_A')
plt.ylabel('Percent')
plt.show()
```



In [ ]:
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