In [ ]:
```
def pow(a, n):
    ''' recursive function to calculate power of a number '''
    if n == 0:
        return 1
    return pow(a, n - 1) * a
```

In [ ]:
```
import textwrap # for pretty printing
p = pow(6,700)
s = str(p)
a = textwrap.fill(s, width=80)
print(a) # printing pow(6,700) with 80 numbers per line
```

In [ ]:
```
p, z = pow(6,700), 0
while p > 10:
    p, z = p // 10, z + 1
print(z)
```

In [ ]:
```
import timeit
t = timeit.timeit('pow(6,700)', setup="from __main__ import pow", number=10000)
print(f'time elapsed on pow(6,700) = {t:.4f} s')
```

In [ ]:
```
def qpow(a, n):
    ''' quick recursive function to calculate power of a number '''
    if n == 0:
        return 1
    elif n % 2 == 1: # n is odd
        return qpow(a, n - 1) * a
    else: #n is even
        return qpow(a ** 2, n // 2)
```

In [ ]:
```
''' comparing results '''
qpow(6, 700) == pow(6, 700)
```

In [ ]:
```
import timeit
t = timeit.timeit('qpow(6,700)', setup="from __main__ import qpow", number=10000)
print(f'time elapsed on qpow(6,700) = {t:.4f} s')
```