```cpp
// COS30008, Problem Set 1/4, 2024

#include "BernsteinBasisPolynomial.h"

#include <cmath>

BernsteinBasisPolynomial::BernsteinBasisPolynomial(unsigned int aV,
  unsigned int aN) :
    fFactor(aN, aV)
{ }

double BernsteinBasisPolynomial::operator()(double aX) const
{
    size_t lN = fFactor.getN();
    size_t lV = fFactor.getK();

    return fFactor() * pow(aX, lV) * pow(1 - aX, lN - lV);
}
```