double Polynomial::operator()(double aX) const

{

double result = 0.0;

for (int i = 0; i <= fDegree; i++)

{

result += fCoeffs[i] \* pow(aX, i);

}

return result;

}

Polynomial Polynomial::getDifferential() const

{

Polynomial result;

result.fDegree = fDegree - 1;

for (int i = 0; i <= result.fDegree; i++)

{

result.fCoeffs[i] = fCoeffs[i + 1] \* (i + 1);

}

return result;

}

Polynomial Polynomial::getIndefiniteIntegral() const

{

Polynomial result;

result.fDegree = fDegree + 1;

result.fCoeffs[0] = 0;

for (int i = 1; i <= result.fDegree; i++)

{

result.fCoeffs[i] = fCoeffs[i - 1] / i;

}

return result;

}

double Polynomial::getDefiniteIntegral(double aXLow, double aXHigh) const

{

Polynomial integral = getIndefiniteIntegral();

return integral(aXHigh) - integral(aXLow);

}

A screenshot of a cell phone

Description automatically generated