

```
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);  
}
```

```
Specify first polynomial (degree followed by coefficients):  
1  
4.0 -0.25  
A = 4x^0 + -0.25x^1  
Specify value of x:  
16  
A(x) = 0  
Indefinite integral of A = 4x^1 + -0.125x^2  
Differential of A = -0.25x^0  
Differential of indefinite integral of A = 4x^0 + -0.25x^1  
Definite integral of A(xlow=0, xhigh=12.0) = 30  
Polynomial operations are sound.  
Program ended with exit code: 0
```