

## Příklad číslo 2

*with(CurveFitting) :*

```
P := PolynomialInterpolation([9, 3, 4.5, 10, 5.5, 12.5], [9 + sin(9), 3 + sin(3), 4.5 + sin(4.5), 10 + sin(10), 5.5 + sin(5.5), 12.5 + sin(12.5)], x, form=Lagrange);
```

$$\begin{aligned} &0.003023431595 (9 + \sin(9)) (x - 3) (x - 4.5) (x - 10) (x - 5.5) (x - 12.5) \\ &- 0.0006683375104 (3 + \sin(3)) (x - 9) (x - 4.5) (x - 10) (x - 5.5) (x - 12.5) \\ &+ 0.01186016795 (x - 9) (x - 3) (x - 10) (x - 5.5) (x - 12.5) - 0.002308802309 (10 + \sin(10)) (x - 9) (x - 3) (x - 4.5) (x - 5.5) (x - 12.5) \\ &- 0.01739486503 (x - 9) (x - 3) (x - 4.5) (x - 10) (x - 12.5) + 0.002671037186 (x - 9) (x - 3) (x - 4.5) (x - 10) (x - 5.5) \end{aligned} \quad (1)$$

```
expand(evalf(P));
```

$$3.09117017 x - 2.21991785 x^2 + 0.545203514 x^3 - 0.0513743551 x^4 + 0.001661922286 x^5 + 2.88384950 \quad (2)$$

```
plot([x + sin(x), P], x=0..15, color=[blue, green], thickness=3, legend=["Původní funkce", "Lagrangeův polynom"]);
```

