```
nN = 2;

M = f[x + #] == (Normal[Series[f[x + h], {h, 0, nN}]] /. h → #) & /@ {a, -b}
Simplify[Solve[M, Table[D[f[x], {x, i}], {i, 1, nN}]]][[1, 1]]
```

$$\left\{f[a+x] == f[x] + a\, f'[x] + \frac{1}{2}\, a^2\, f''[x],\ f[-b+x] == f[x] - b\, f'[x] + \frac{1}{2}\, b^2\, f''[x]\right\}$$

$$f'[x] \to \frac{\left(a^2 - b^2\right) f[x] + b^2\, f[a+x] - a^2\, f[-b+x]}{a\, b\, (a+b)}$$

```
InputForm[%]
```

```
Derivative[1][f][x] -> ((a^2 - b^2)*f[x] + b^2*f[a + x] - a^2*f[-b + x])/(a*b*(a + b))
```

```
Simplify[% /. {a -> x2 - x1, b → x1 - x0, x → x1}]
```

$$f'[x1] \to \frac{(x1 - x2)^2\, f[x0] + (x0 - x2)\,(x0 - 2\, x1 + x2)\, f[x1] - (x0 - x1)^2\, f[x2]}{(x0 - x1)\,(x0 - x2)\,(x1 - x2)}$$