```
> restart;
> t:=n->t0+n*h;
```

$$t := n \mapsto t0 + n\,h \tag{1}$$

```
> t(2);
```

$$t0 + 2\,h \tag{2}$$

```
> p:=x->f(t(n-1),ynm1)*(x-t(n))*(x-t(n+1))/((t(n-1)-t(n))*(t(n-1)-t
  (n+1)))
      +f(t(n),yn)*(x-t(n-1))*(x-t(n+1))/((t(n)-t(n-1))*(t(n)-t
  (n+1)))
      +f(t(n+1),ynp1)*(x-t(n-1))*(x-t(n))/((t(n+1)-t(n-1))*(t(n+1)
  -t(n)));
```

$$p := x \mapsto \frac{f(t(n-1),\, ynm1)\,(x-t(n))\,(x-t(n+1))}{(t(n-1)-t(n))\,(t(n-1)-t(n+1))} + \frac{f(t(n),\, yn)\,(x-t(n-1))\,(x-t(n+1))}{(t(n)-t(n-1))\,(t(n)-t(n+1))} + \frac{f(t(n+1),\, ynp1)\,(x-t(n-1))\,(x-t(n))}{(t(n+1)-t(n-1))\,(t(n+1)-t(n))} \tag{3}$$

```
> simplify(p(x));
```

$$\frac{1}{2\,h^2}\left((n\,h+t0-x)\,((n+1)\,h-x+t0)\,f(t0+(n-1)\,h,\, ynm1) + ((n-1)\,h-x+t0)\,((n\,h+t0-x)\,f(n\,h+h+t0,\, ynp1) - 2\,f(n\,h+t0,\, yn)\,((n+1)\,h-x+t0)\right) \tag{4}$$

```
> sort(simplify(int(p(x),x=t(n)..t(n+1))));
```

$$-\frac{(f((n-1)\,h+t0,\, ynm1) - 8\,f(n\,h+t0,\, yn) - 5\,f(n\,h+h+t0,\, ynp1))\,h}{12} \tag{5}$$