```
% 1 b
syms x
xs=[-.075, -0.5, -0.25, 0]
fxs=[-0.071815, -0.02475, 0.3349375, 1.101]
p01=((x-xs(1))*(fxs(2))-(x-xs(2))*(fxs(1)))/(xs(2)-xs(1))
p12=((x-xs(2))*(fxs(3))-(x-xs(3))*(fxs(2)))/(xs(3)-xs(2))
p012=((x-xs(1))*(p12)-(x-xs(3))*(p01))/(xs(3)-xs(1))
p23=((x-xs(3))*(fxs(4))-(x-xs(4))*(fxs(3)))/(xs(4)-xs(3))
p123=((x-xs(2))*(p23)-(x-xs(4))*(p12))/(xs(4)-xs(2))
p0123=((x-xs(1))*(p123)-(x-xs(4))*(p012))/(xs(4)-xs(1))

expand(p01)
expand(p012)
expand(p0123)

x=-1/3
subs(p01)
subs(p012)
subs(p0123)


xs =

   -0.0750   -0.5000   -0.2500         0


fxs =

   -0.0718   -0.0248    0.3349    1.1010


p01 =

- (42392383292438 4823*x)/3828059683264921600 -
 3067063936229992211/38280596832649216000


p12 =

(1151*x)/800 + 5557/8000


p012 =

- (40*((1151*x)/800 + 5557/8000)*(x + 3/40))/7 -
 (40*((42392383292438 4823*x)/3828059683264921600 +
 3067063936229992211/38280596832649216000)*(x + 1/4))/7


p23 =

(12257*x)/4000 + 1101/1000
```

```
p123 =

2*((12257*x)/4000 + 1101/1000)*(x + 1/2) - 2*x*((1151*x)/800 +
 5557/8000)


p0123 =

(40*x*((40*((1151*x)/800 + 5557/8000)*(x + 3/40))/7
 + (40*((42392383292438 4823*x)/3828059683264921600 +
 306706393622999 2211/3828059683264921600)*(x + 1/4))/7))/3 - (40*(x
 + 3/40)*(2*x*((1151*x)/800 + 5557/8000) - 2*((12257*x)/4000 +
 1101/1000)*(x + 1/2)))/3


ans =

- (423923832924384823*x)/3828059683264921600 -
 306706393622999 2211/3828059683264921600


ans =

- (6969649749078594 0793*x)/13398208891427225600
 - (1186308940444358155*x^2)/133982088914272256 -
 552213090434684 03551/133982088914272256000


ans =

(2027355889380821 57407*x^3)/1256082083571302400 +
 (1040901430381679481051*x^2)/8373880557142016000 +
 (1208471154210648363227*x)/50243283342852096000 + 1101/1000


x =

   -0.3333


ans =

-4961953479446128403/114841790497947648000


ans =

407594202888004436831/1205838800228450304000


ans =
```

12441438853840733513 87/135656865025700659 2000

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