```
> 
> with(plots):;
  m:=10;
  mm:=2^m;
  mms2:=mm/2;
  fo:=100;
  a:=10;              # amplitude fondamental
  b:=9;               # max positif
  bc:=9;              # max négatif
  zz:=t->a*sin(fo*2*Pi*t);
  z:=t->zz(t)-2*(((max(zz(t),b)-b)+(min(zz(t),-bc)+bc)));
  plot(z(t),t=0..5/fo,numpoints=10000); # visualisation 5 périodes


  #plot(z(t),t=0..1,numpoints=10000); # visualisation 1 seconde;
  A:=array[0..mm]:
  B:=array[0..mm]:
  AA:=array[0..mm]:
  BB:=array[0..mm]:
  for i from 1 to mm by 1 do
  A[i]:=z(i/mm):
  B[i]:=0:
  end do:
  FFT(m,A,B):

  for i from 1 to mm by 1 do
  AA[i]:=abs((evalf(A[i],3))):
  FF[i]:=(abs((evalf(i,3)))):
  BB[i]:=evalf(B[i],3):
  AMP[i]:=sqrt(AA[i]*AA[i]+BB[i]*BB[i])/mms2;
  end do:

  listplot([seq([FF[i],AMP[i]], i=1..mm/2)]);
```

$$m := 10$$

$$mm := 1024$$

$$mms2 := 512$$

$$fo := 100$$

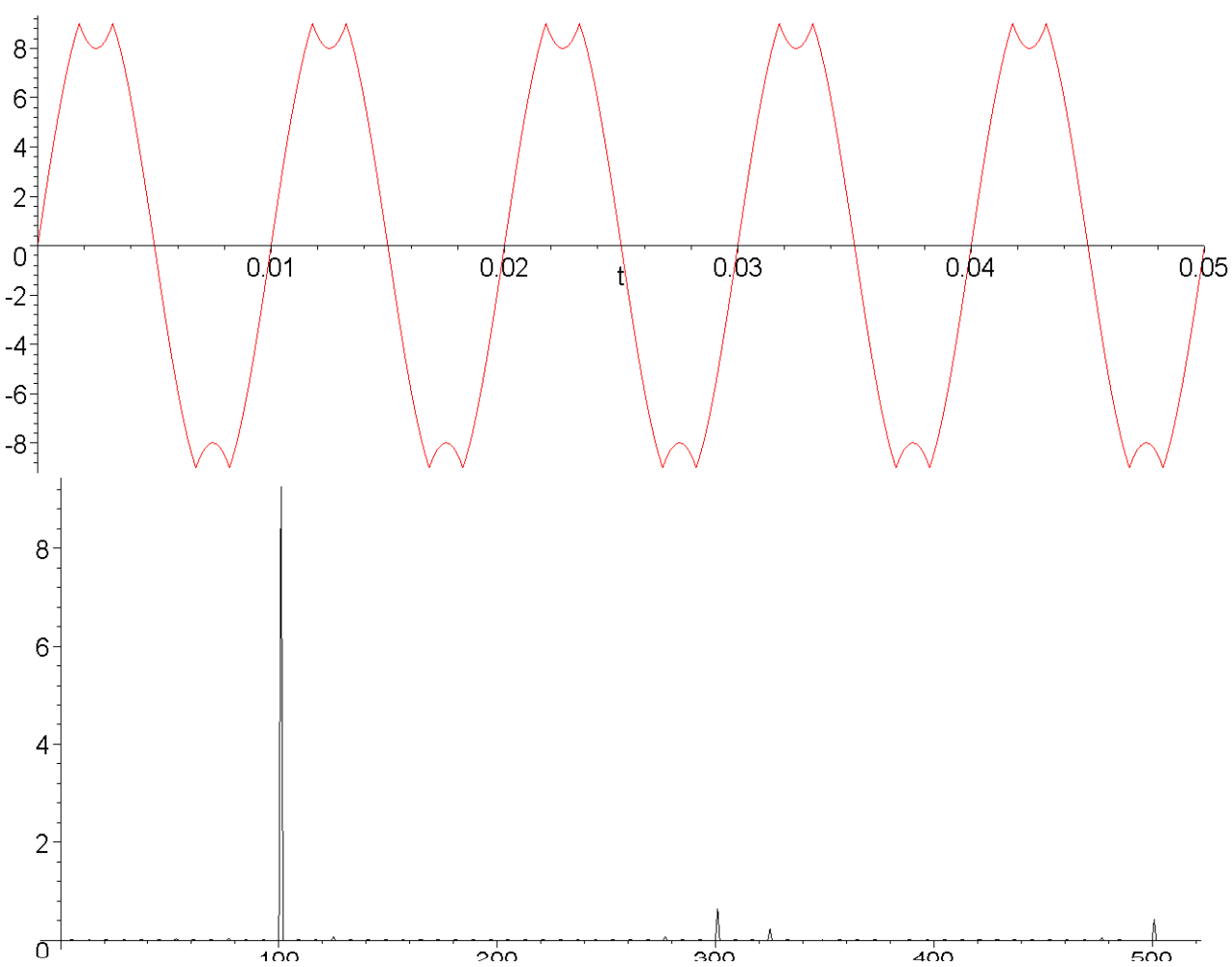
$$a := 10$$

$$b := 9$$

$$bc := 9$$

$$zz := t \to a \sin(2\, fo\, \pi\, t)$$

$$z := t \to zz(t) - 2 \max(zz(t), b) + 2\, b - 2 \min(zz(t), -bc) - 2\, bc$$




```
> with(plots):;
  m:=10;
  mm:=2^m;
  mms2:=mm/2;
  fo:=100;
  a:=10;              # amplitude fondamental
  b:=9;               # max positif
  bc:=7;              # max négatif ici dissymétrie de l'AO

  zz:=t->a*sin(fo*2*Pi*t);
  z:=t->zz(t)-2*(((max(zz(t),b)-b)+(min(zz(t),-bc)+bc)));
  plot(z(t),t=0..5/fo,numpoints=10000); # visualisation 5 périodes


  #plot(z(t),t=0..1,numpoints=10000); # visualisation 1 seconde;
  A:=array[0..mm]:
  B:=array[0..mm]:
  AA:=array[0..mm]:
  BB:=array[0..mm]:
  for i from 1 to mm by 1 do
  A[i]:=z(i/mm):
  B[i]:=0:
```

```
end do:
FFT(m,A,B):

for i from 1 to mm by 1 do
AA[i]:=abs((evalf(A[i],3))):
FF[i]:=(abs((evalf(i,3)))):
BB[i]:=evalf(B[i],3):
AMP[i]:=sqrt(AA[i]*AA[i]+BB[i]*BB[i])/mms2;
end do:

listplot([seq([FF[i],AMP[i]], i=1..mm/2)]);
```

$$m := 10$$

$$mm := 1024$$

$$mms2 := 512$$

$$fo := 100$$

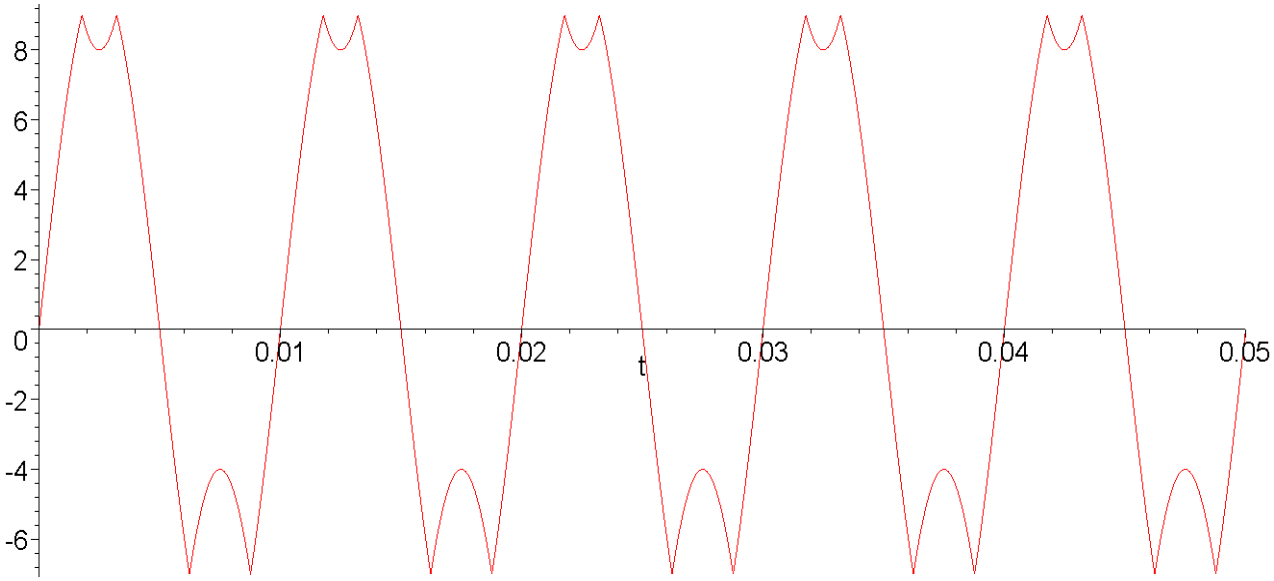
$$a := 10$$

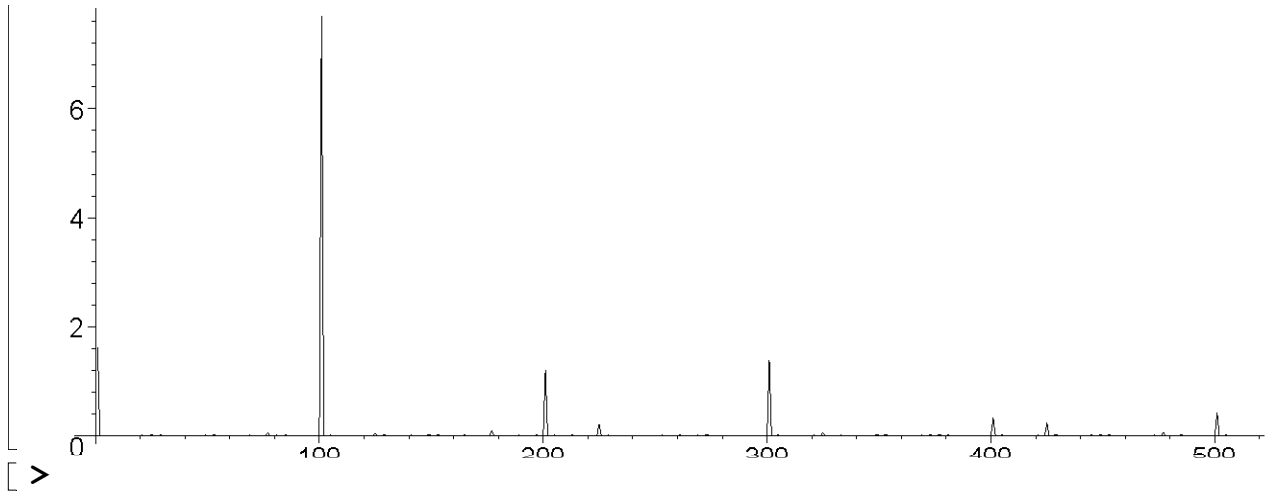
$$b := 9$$

$$bc := 7$$

$$zz := t \to a \sin(2\, fo\, \pi\, t)$$

$$z := t \to zz(t) - 2 \max(zz(t), b) + 2\, b - 2 \min(zz(t), -bc) - 2\, bc$$




6
4
2
0
100
200
300
400
500