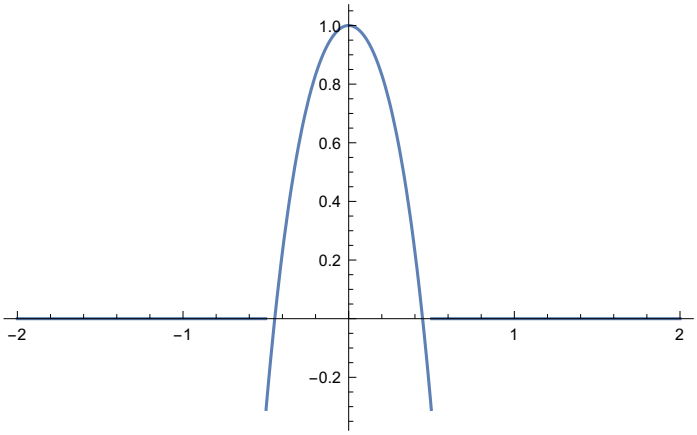
In[3]:=
```
F[x_, a2_, a4_, a6_] = (UnitStep[x + 0.5] - UnitStep[x - 0.5]) * (1 + a2 * x^2 + a4 * x^4 + a6 * x^6)
```

Out[3]=
$$(1 + a2\ x^2 + a4\ x^4 + a6\ x^6)\ (-\text{UnitStep}[-0.5 + x] + \text{UnitStep}[0.5 + x])$$

In[4]:=
```
Plot[F[x, -4, -16/3, 1], {x, -2, 2}]
```

Out[4]=



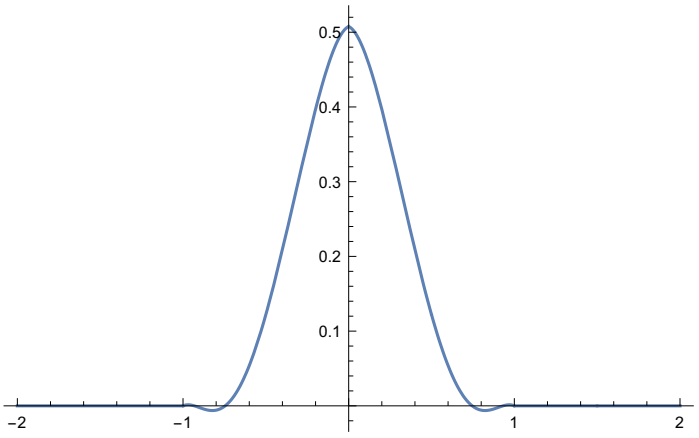
In[5]:=
```
FAC[Δ_, a2_, a4_, a6_] = Integrate[F[x, a2, a4, a6] * F[x - Δ, a2, a4, a6], {x, -1, 1}]
```

Out[5]=
$$0.0000832500832501 \times$$
$$(0. + (-1.00019992288 \times 10^{-12}\ a4\ a6\ \Delta^6 + (-12\,012. - 53.625\ a6 - 0.2255859375\ a6^2 - 12\,012.\ \Delta - 375.375\ a6\ \Delta - 2.9326171875\ a6^2\ \Delta - 2252.25\ a6\ \Delta^2 - 15.99609375\ a6^2\ \Delta^2 - 7507.5\ a6\ \Delta^3 - 46.921875\ a6^2\ \Delta^3 - 15\,015.\ a6\ \Delta^4 - 78.203125\ a6^2\ \Delta^4 - 18\,018.\ a6\ \Delta^5 - 70.3828125\ a6^2\ \Delta^5 - 12\,012.\ a6\ \Delta^6 - 26.8125\ a6^2\ \Delta^6 - 3432.\ a6\ \Delta^7 + 2.13375983549 \times 10^{-11}\ a6^2\ \Delta^8 + 4.26751967098 \times 10^{-11}\ a6^2\ \Delta^{10} - 1.\ a6^2\ \Delta^{13} + a2^2\ (-150.15 - 750.75\ \Delta - 1001.\ \Delta^2 - 400.4\ \Delta^5) + a4^2\ (-5.21354166667 - 46.921875\ \Delta - 160.875\ \Delta^2 - 250.25\ \Delta^3 - 150.15\ \Delta^4 - 19.0666666667\ \Delta^9) + a2\ (-2002. - 6006.\ \Delta - 12\,012.\ \Delta^2 - 8008.\ \Delta^3 + a4\ (-53.625 - 375.375\ \Delta - 1051.05\ \Delta^2 - 1501.5\ \Delta^3 - 1001.\ \Delta^4 - 228.8\ \Delta^7) + a6\ (-10.4270833333 - 93.84375\ \Delta - 429.\ \Delta^2 - 1251.25\ \Delta^3 - 2252.25\ \Delta^4 - 2252.25\ \Delta^5 - 1001.\ \Delta^6 - 95.3333333333\ \Delta^9)) + a4\ (-300.3 - 1501.5\ \Delta - 6006.\ \Delta^2 - 12\,012.\ \Delta^3 - 12\,012.\ \Delta^4 - 4804.8\ \Delta^5 + a6\ (-2.1328125 - 23.4609375\ \Delta - 109.484375\ \Delta^2 - 281.53125\ \Delta^3 - 429.\ \Delta^4 - 375.375\ \Delta^5 - 150.15\ \Delta^6 + 4.26751967098 \times 10^{-11}\ \Delta^8 - 10.4\ \Delta^{11}))))\ \text{UnitStep}[-1. - 1.\ \Delta] + \Delta\ (12\,012. + 375.375\ a6 + 2.9326171875\ a6^2 + 7507.5\ a6\ \Delta^2 + 46.921875\ a6^2\ \Delta^2 + 18\,018.\ a6\ \Delta^4 + 70.3828125\ a6^2\ \Delta^4 + 3432.\ a6\ \Delta^6 - 5.33439958872 \times 10^{-12}\ a6^2\ \Delta^6 - 2.13375983549 \times 10^{-11}\ a6^2\ \Delta^7 - 4.26751967098 \times 10^{-11}\ a6^2\ \Delta^9 + a6^2\ \Delta^{12} + a2^2\ (750.75 + 400.4\ \Delta^4) + a4^2\ (46.921875 + 250.25\ \Delta^2 + 19.0666666667\ \Delta^8) + a2\ (6006. + 8008.\ \Delta^2 + a4\ (375.375 + 1501.5\ \Delta^2 + 228.8\ \Delta^6) + a6\ (93.84375 + 1251.25\ \Delta^2 + 2252.25\ \Delta^4 + 1.06687991774 \times 10^{-11}\ \Delta^5 + 95.3333333333\ \Delta^8)) + a4\ (1501.5 + 12\,012.\ \Delta^2 + 4804.8\ \Delta^4 + a6\ (23.4609375 + 281.53125\ \Delta^2 + 375.375\ \Delta^4 - 1.06687991774 \times 10^{-11}\ \Delta^5 - 4.26751967098 \times 10^{-11}\ \Delta^7 + 10.4\ \Delta^{10})))\ \text{UnitStep}[0. - 1.\ \Delta])\ \text{UnitStep}[0.5 - 1.\ \Delta] + (5.33439958872 \times 10^{-12}\ a6^2\ \Delta^7 + \Delta\ (12\,012. + 375.375\ a6 + 2.9326171875\ a6^2 + 7507.5\ a6\ \Delta^2 + 46.921875\ a6^2\ \Delta^2 + 18\,018.\ a6\ \Delta^4 + 70.3828125\ a6^2\ \Delta^4 + 3432.\ a6\ \Delta^6 - 5.33439958872 \times 10^{-12}\ a6^2\ \Delta^6 +$$

```
2.13375983549 × 10^-11 a6^2 Δ^7 + 4.26751967098 × 10^-11 a6^2 Δ^9 + a6^2 Δ^12 +
a2^2 (750.75 + 400.4 Δ^4) + a4^2 (46.921875 + 250.25 Δ^2 + 19.0666666667 Δ^8) +
a2 (6006. + 8008. Δ^2 + a4 (375.375 + 1501.5 Δ^2 + 228.8 Δ^6) + a6 (93.84375 + 1251.25
      Δ^2 + 2252.25 Δ^4 - 1.06687991774 × 10^-11 Δ^5 + 95.3333333333 Δ^8)) +
a4 (1501.5 + 12 012. Δ^2 + 4804.8 Δ^4 + a6 (23.4609375 + 281.53125 Δ^2 + 375.375
      Δ^4 + 1.06687991774 × 10^-11 Δ^5 + 4.26751967098 × 10^-11 Δ^7 + 10.4 Δ^10)))
UnitStep[0. - 1. Δ] + (12 012. + 53.625 a6 + 0.2255859375 a6^2 - 12 012. Δ -
375.375 a6 Δ - 2.9326171875 a6^2 Δ + 2252.25 a6 Δ^2 + 15.99609375 a6^2 Δ^2 -
7507.5 a6 Δ^3 - 46.921875 a6^2 Δ^3 + 15 015. a6 Δ^4 + 78.203125 a6^2 Δ^4 -
18 018. a6 Δ^5 - 70.3828125 a6^2 Δ^5 + 12 012. a6 Δ^6 + 26.8125 a6^2 Δ^6 - 3432. a6 Δ^7 -
2.13375983549 × 10^-11 a6^2 Δ^8 - 4.26751967098 × 10^-11 a6^2 Δ^10 - 1. a6^2 Δ^13 +
a2^2 (150.15 - 750.75 Δ + 1001. Δ^2 - 400.4 Δ^5) + a4^2 (5.21354166667 -
   46.921875 Δ + 160.875 Δ^2 - 250.25 Δ^3 + 150.15 Δ^4 - 19.0666666667 Δ^9) +
a2 (2002. - 6006. Δ + 12 012. Δ^2 - 8008. Δ^3 + a4 (53.625 - 375.375 Δ + 1051.05
      Δ^2 - 1501.5 Δ^3 + 1001. Δ^4 - 228.8 Δ^7) + a6 (10.4270833333 - 93.84375 Δ + 429.
      Δ^2 - 1251.25 Δ^3 + 2252.25 Δ^4 - 2252.25 Δ^5 + 1001. Δ^6 - 95.3333333333 Δ^9)) +
a4 (300.3 - 1501.5 Δ + 6006. Δ^2 - 12 012. Δ^3 + 12 012. Δ^4 - 4804.8 Δ^5 +
   a6 (2.1328125 - 23.4609375 Δ + 109.484375 Δ^2 - 281.53125 Δ^3 + 429.
      Δ^4 - 375.375 Δ^5 + 150.15 Δ^6 - 4.26751967098 × 10^-11 Δ^8 - 10.4 Δ^11)))
UnitStep[1. - 1. Δ]) UnitStep[1.5 - 1. Δ])
```

In[6]:=
```
Plot[FAC[t, -4, -16/3, 1], {t, -2, 2}]
```

Out[6]=



In[7]:=
$$\epsilon[a2\_, a4\_, a6\_] = \frac{\text{Integrate}[\text{Evaluate}@\text{FAC}[x, a2, a4, a6]\text{^}2, \{x, -1, 1\}]}{\text{FAC}[0, a2, a4, a6]\text{^}2}$$

Out[7]=
$$\begin{aligned}&(1. \times (9.6192096 \times 10^7 + 5530.525\ a2^4 + 4.05171566621\ a4^4 + 715\,715.\ a6 + 2300.51250017\ a6^2 + \\ &\quad 3.65673952643\ a6^3 + 0.00543617066614\ a6^4 + a4^3 (645.740333327 + 3.04719540558\ a6) + \\ &\quad a2^3 (194\,038.288889 + 3495.9925\ a4 + 628.961666667\ a6) + \\ &\quad a4^2 (73\,783.71 + 344.055634189\ a6 + 0.868747215165\ a6^2) + \\ &\quad a4 (4.1225184 \times 10^6 + 26\,013.4874998\ a6 + 61.324427966\ a6^2 + 0.111432481455\ a6^3) + \\ &\quad a2^2 (3.435432 \times 10^6 + 848.013833332\ a4^2 + 15\,152.6375001\ a6 + \\ &\qquad 28.3015933307\ a6^2 + a4 (86\,146.0600001 + 308.720965076\ a6)) + \\ &\quad a2 (2.88576288 \times 10^7 + 94.0027849263\ a4^3 + 175\,675.5\ a6 + 403.153538615\ a6^2 + \\ &\qquad 0.606775186607\ a6^3 + a4^2 (12\,860.3475 + 52.0568215461\ a6) + \\ &\qquad a4 (1.002001 \times 10^6 + 4545.97\ a6 + 9.69052583957\ a6^2)))) \Big/ \\ &(12\,012. + 150.15\ a2^2 + 5.21354166667\ a4^2 + 53.625\ a6 + 0.2255859375\ a6^2 + \\ &\quad a4 (300.3 + 2.1328125\ a6) + a2 (2002. + 53.625\ a4 + 10.4270833333\ a6))^2\end{aligned}$$

In[8]:=
```
Maximize[ϵ[a2, a4, a6], {a2, a4, a6}]
```

Out[8]=
$$\{0.686981293031\ , \{a2 \to -1.79005037628\ , a4 \to 1.1026880166\ , a6 \to -0.317743535132\ \}\}$$

Compare to the actual Taylor series.

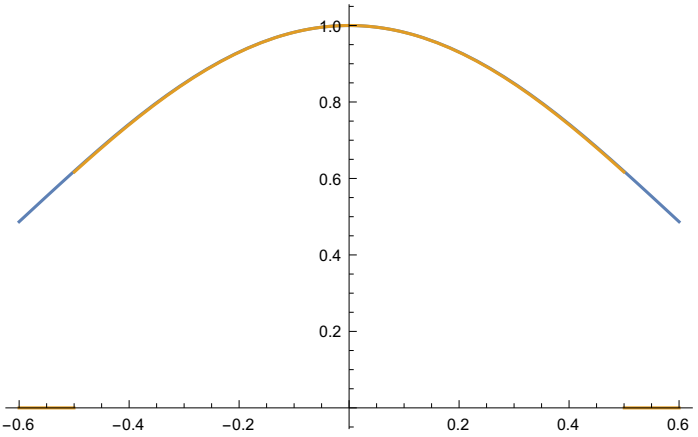
In[9]:=
```
Series[Cos[1.3359281199932025` * x]^2, {x, 0, 6}]
```

Out[9]=
$$1 - 1.78470394179\ x^2 + 1.06172271995\ x^4 - 0.25264809645\ x^6 + O[x]^7$$

Compare Cos[x]^2 to the Taylor polynomial found above.

In[15]:=
```
Plot[{Cos[1.3309 * x]^2, (UnitStep[x + 0.5] - UnitStep[x - 0.5]) * (1 - 1.7900503762763724` x^2 +
    1.1026880165979676` x^4 - 0.31774353513175274` x^6)}, {x, -0.6, 0.6}]
```

Out[15]=



Show that both the Cos[x]^2 series as well as the solved series give the same ϵ

In[10]:=
```
N[ϵ[-1.7847039417885724` , 1.0617227199452226` , -0.25264809644969644` ]]
```

Out[10]=
$$0.686981276785$$

In[11]:=
```
N[ϵ[-1.7900503762763724` , 1.1026880165979676` , -0.31774353513175274` ]]
```

Out[11]=
```
0.686981293031
```

Calculate slope of ϵ at solution.

In[12]:=
```
DEp[a2_ , a4_ , a6_] = D[ϵ[a2 , a4 , a6], a2 , a4 , a6]
```

Out[12]=
```
(1. × (4545.97 + 617.441930152 a2 + 104.113643092 a4 + 19.3810516791 a6)) /
  (12 012. + 150.15 a2^2 + 5.21354166667 a4^2 + 53.625 a6 + 0.2255859375 a6^2 +
      a4 (300.3 + 2.1328125 a6) + a2 (2002. + 53.625 a4 + 10.4270833333 a6))^2 -
 (2. × (2002. + 300.3 a2 + 53.625 a4 + 10.4270833333 a6) ×
    (26 013.4874998 + 308.720965076 a2^2 + 9.14158621675 a4^2 + 122.648855932 a6 +
       0.334297444366 a6^2 + 2 a4 (344.055634189 + 1.73749443033 a6) +
       a2 (4545.97 + 104.113643092 a4 + 19.3810516791 a6))) /
  (12 012. + 150.15 a2^2 + 5.21354166667 a4^2 + 53.625 a6 + 0.2255859375 a6^2 +
      a4 (300.3 + 2.1328125 a6) + a2 (2002. + 53.625 a4 + 10.4270833333 a6))^3 -
 (2. × (300.3 + 53.625 a2 + 10.4270833333 a4 + 2.1328125 a6) ×
    (175 675.5 + 1886.885 a2^2 + 52.0568215461 a4^2 + 806.307077229 a6 +
       1.82032555982 a6^2 + a4 (4545.97 + 19.3810516791 a6) +
       2 a2 (15 152.6375001 + 308.720965076 a4 + 56.6031866614 a6))) /
  (12 012. + 150.15 a2^2 + 5.21354166667 a4^2 + 53.625 a6 + 0.2255859375 a6^2 +
      a4 (300.3 + 2.1328125 a6) + a2 (2002. + 53.625 a4 + 10.4270833333 a6))^3 -
 (2. × (53.625 + 10.4270833333 a2 + 2.1328125 a4 + 0.451171875 a6) ×
    (1.002001 × 10^6 + 10 487.9775 a2^2 + 282.008354779 a4^2 + 4545.97 a6 +
       9.69052583957 a6^2 + 2 a4 (12 860.3475 + 52.0568215461 a6) +
       2 a2 (86 146.0600001 + 1696.02766666 a4 + 308.720965076 a6))) /
  (12 012. + 150.15 a2^2 + 5.21354166667 a4^2 + 53.625 a6 + 0.2255859375 a6^2 +
      a4 (300.3 + 2.1328125 a6) + a2 (2002. + 53.625 a4 + 10.4270833333 a6))^3 +
 (6. × (300.3 + 53.625 a2 + 10.4270833333 a4 + 2.1328125 a6) ×
    (2002. + 300.3 a2 + 53.625 a4 + 10.4270833333 a6) ×
    (715 715. + 628.961666667 a2^3 + 3.04719540558 a4^3 + 4601.02500033 a6 +
       10.9702185793 a6^2 + 0.0217446826646 a6^3 + a4^2 (344.055634189 + 1.73749443033 a6) +
       a2^2 (15 152.6375001 + 308.720965076 a4 + 56.6031866614 a6) +
       a4 (26 013.4874998 + 122.648855932 a6 + 0.334297444366 a6^2) +
       a2 (175 675.5 + 52.0568215461 a4^2 + 806.307077229 a6 +
          1.82032555982 a6^2 + a4 (4545.97 + 19.3810516791 a6)))) /
  (12 012. + 150.15 a2^2 + 5.21354166667 a4^2 + 53.625 a6 + 0.2255859375 a6^2 +
      a4 (300.3 + 2.1328125 a6) + a2 (2002. + 53.625 a4 + 10.4270833333 a6))^4 -
 (107.25 × (715 715. + 628.961666667 a2^3 + 3.04719540558 a4^3 + 4601.02500033 a6 +
       10.9702185793 a6^2 + 0.0217446826646 a6^3 + a4^2 (344.055634189 + 1.73749443033 a6) +
       a2^2 (15 152.6375001 + 308.720965076 a4 + 56.6031866614 a6) +
       a4 (26 013.4874998 + 122.648855932 a6 + 0.334297444366 a6^2) +
```

$$a2\,(175\,675.5 + 52.0568215461\ a4^{2} + 806.307077229\ a6 +$$
$$1.82032555982\ a6^{2} + a4\,(4545.97 + 19.3810516791\ a6)))) \Big/$$
$$(12\,012. + 150.15\ a2^{2} + 5.21354166667\ a4^{2} + 53.625\ a6 + 0.2255859375\ a6^{2} +$$
$$a4\,(300.3 + 2.1328125\ a6) + a2\,(2002. + 53.625\ a4 + 10.4270833333\ a6))^{3} +$$
$$(6. \times (53.625 + 10.4270833333\ a2 + 2.1328125\ a4 + 0.451171875\ a6) \times$$
$$(2002. + 300.3\ a2 + 53.625\ a4 + 10.4270833333\ a6) \times$$
$$(4.1225184 \times 10^{6} + 3495.9925\ a2^{3} + 16.2068626648\ a4^{3} + 26\,013.4874998\ a6 +$$
$$61.324427966\ a6^{2} + 0.111432481455\ a6^{3} + 3\ a4^{2}\,(645.740333327 + 3.04719540558\ a6) +$$
$$a2^{2}\,(86\,146.0600001 + 1696.02766666\ a4 + 308.720965076\ a6) +$$
$$2\ a4\,(73\,783.71 + 344.055634189\ a6 + 0.868747215165\ a6^{2}) +$$
$$a2\,(1.002001 \times 10^{6} + 282.008354779\ a4^{2} + 4545.97\ a6 +$$
$$9.69052583957\ a6^{2} + 2\ a4\,(12\,860.3475 + 52.0568215461\ a6)))) \Big/$$
$$(12\,012. + 150.15\ a2^{2} + 5.21354166667\ a4^{2} + 53.625\ a6 + 0.2255859375\ a6^{2} +$$
$$a4\,(300.3 + 2.1328125\ a6) + a2\,(2002. + 53.625\ a4 + 10.4270833333\ a6))^{4} -$$
$$(20.8541666667 \times (4.1225184 \times 10^{6} + 3495.9925\ a2^{3} + 16.2068626648\ a4^{3} + 26\,013.4874998\ a6 +$$
$$61.324427966\ a6^{2} + 0.111432481455\ a6^{3} + 3\ a4^{2}\,(645.740333327 + 3.04719540558\ a6) +$$
$$a2^{2}\,(86\,146.0600001 + 1696.02766666\ a4 + 308.720965076\ a6) +$$
$$2\ a4\,(73\,783.71 + 344.055634189\ a6 + 0.868747215165\ a6^{2}) +$$
$$a2\,(1.002001 \times 10^{6} + 282.008354779\ a4^{2} + 4545.97\ a6 +$$
$$9.69052583957\ a6^{2} + 2\ a4\,(12\,860.3475 + 52.0568215461\ a6)))) \Big/$$
$$(12\,012. + 150.15\ a2^{2} + 5.21354166667\ a4^{2} + 53.625\ a6 + 0.2255859375\ a6^{2} +$$
$$a4\,(300.3 + 2.1328125\ a6) + a2\,(2002. + 53.625\ a4 + 10.4270833333\ a6))^{3} +$$
$$(6. \times (53.625 + 10.4270833333\ a2 + 2.1328125\ a4 + 0.451171875\ a6) \times$$
$$(300.3 + 53.625\ a2 + 10.4270833333\ a4 + 2.1328125\ a6) \times$$
$$(2.88576288 \times 10^{7} + 22\,122.1\ a2^{3} + 94.0027849263\ a4^{3} + 175\,675.5\ a6 +$$
$$403.153538615\ a6^{2} + 0.606775186607\ a6^{3} + a4^{2}\,(12\,860.3475 + 52.0568215461\ a6) +$$
$$3\ a2^{2}\,(194\,038.288889 + 3495.9925\ a4 + 628.961666667\ a6) +$$
$$a4\,(1.002001 \times 10^{6} + 4545.97\ a6 + 9.69052583957\ a6^{2}) +$$
$$2\ a2\,(3.435432 \times 10^{6} + 848.013833332\ a4^{2} + 15\,152.6375001\ a6 +$$
$$28.3015933307\ a6^{2} + a4\,(86\,146.0600001 + 308.720965076\ a6)))) \Big/$$
$$(12\,012. + 150.15\ a2^{2} + 5.21354166667\ a4^{2} + 53.625\ a6 + 0.2255859375\ a6^{2} +$$
$$a4\,(300.3 + 2.1328125\ a6) + a2\,(2002. + 53.625\ a4 + 10.4270833333\ a6))^{4} -$$
$$(4.265625 \times (2.88576288 \times 10^{7} + 22\,122.1\ a2^{3} + 94.0027849263\ a4^{3} + 175\,675.5\ a6 +$$
$$403.153538615\ a6^{2} + 0.606775186607\ a6^{3} + a4^{2}\,(12\,860.3475 + 52.0568215461\ a6) +$$
$$3\ a2^{2}\,(194\,038.288889 + 3495.9925\ a4 + 628.961666667\ a6) +$$
$$a4\,(1.002001 \times 10^{6} + 4545.97\ a6 + 9.69052583957\ a6^{2}) +$$
$$2\ a2\,(3.435432 \times 10^{6} + 848.013833332\ a4^{2} + 15\,152.6375001\ a6 +$$
$$28.3015933307\ a6^{2} + a4\,(86\,146.0600001 + 308.720965076\ a6)))) \Big/$$
$$(12\,012. + 150.15\ a2^{2} + 5.21354166667\ a4^{2} + 53.625\ a6 + 0.2255859375\ a6^{2} +$$
$$a4\,(300.3 + 2.1328125\ a6) + a2\,(2002. + 53.625\ a4 + 10.4270833333\ a6))^{3} -$$
$$(24. \times (53.625 + 10.4270833333\ a2 + 2.1328125\ a4 + 0.451171875\ a6) \times$$

$$
\begin{aligned}
&(300.3 + 53.625\ a2 + 10.4270833333\ a4 + 2.1328125\ a6) \times \\
&(2002. + 300.3\ a2 + 53.625\ a4 + 10.4270833333\ a6) \times \\
&(9.6192096 \times 10^7 + 5530.525\ a2^4 + 4.05171566621\ a4^4 + 715\,715.\ a6 + 2300.51250017\ a6^2 + \\
&\quad 3.65673952643\ a6^3 + 0.00543617066614\ a6^4 + a4^3\,(645.740333327 + 3.04719540558\ a6) + \\
&\quad a2^3\,(194\,038.288889 + 3495.9925\ a4 + 628.961666667\ a6) + \\
&\quad a4^2\,(73\,783.71 + 344.055634189\ a6 + 0.868747215165\ a6^2) + \\
&\quad a4\,(4.1225184 \times 10^6 + 26\,013.4874998\ a6 + 61.324427966\ a6^2 + 0.111432481455\ a6^3) + \\
&\quad a2^2\,(3.435432 \times 10^6 + 848.013833332\ a4^2 + 15\,152.6375001\ a6 + \\
&\qquad 28.3015933307\ a6^2 + a4\,(86\,146.0600001 + 308.720965076\ a6)) + \\
&\quad a2\,(2.88576288 \times 10^7 + 94.0027849263\ a4^3 + 175\,675.5\ a6 + 403.153538615\ a6^2 + \\
&\qquad 0.606775186607\ a6^3 + a4^2\,(12\,860.3475 + 52.0568215461\ a6) + \\
&\qquad a4\,(1.002001 \times 10^6 + 4545.97\ a6 + 9.69052583957\ a6^2)))) / \\
&(12\,012. + 150.15\ a2^2 + 5.21354166667\ a4^2 + 53.625\ a6 + 0.2255859375\ a6^2 + \\
&\quad a4\,(300.3 + 2.1328125\ a6) + a2\,(2002. + 53.625\ a4 + 10.4270833333\ a6))^5 + \\
&(321.75 \times (53.625 + 10.4270833333\ a2 + 2.1328125\ a4 + 0.451171875\ a6) \times \\
&\quad (9.6192096 \times 10^7 + 5530.525\ a2^4 + 4.05171566621\ a4^4 + 715\,715.\ a6 + 2300.51250017\ a6^2 + \\
&\quad 3.65673952643\ a6^3 + 0.00543617066614\ a6^4 + a4^3\,(645.740333327 + 3.04719540558\ a6) + \\
&\quad a2^3\,(194\,038.288889 + 3495.9925\ a4 + 628.961666667\ a6) + \\
&\quad a4^2\,(73\,783.71 + 344.055634189\ a6 + 0.868747215165\ a6^2) + \\
&\quad a4\,(4.1225184 \times 10^6 + 26\,013.4874998\ a6 + 61.324427966\ a6^2 + 0.111432481455\ a6^3) + \\
&\quad a2^2\,(3.435432 \times 10^6 + 848.013833332\ a4^2 + 15\,152.6375001\ a6 + \\
&\qquad 28.3015933307\ a6^2 + a4\,(86\,146.0600001 + 308.720965076\ a6)) + \\
&\quad a2\,(2.88576288 \times 10^7 + 94.0027849263\ a4^3 + 175\,675.5\ a6 + 403.153538615\ a6^2 + \\
&\qquad 0.606775186607\ a6^3 + a4^2\,(12\,860.3475 + 52.0568215461\ a6) + \\
&\qquad a4\,(1.002001 \times 10^6 + 4545.97\ a6 + 9.69052583957\ a6^2)))) / \\
&(12\,012. + 150.15\ a2^2 + 5.21354166667\ a4^2 + 53.625\ a6 + 0.2255859375\ a6^2 + \\
&\quad a4\,(300.3 + 2.1328125\ a6) + a2\,(2002. + 53.625\ a4 + 10.4270833333\ a6))^4 + \\
&(62.5625 \times (300.3 + 53.625\ a2 + 10.4270833333\ a4 + 2.1328125\ a6) \times \\
&\quad (9.6192096 \times 10^7 + 5530.525\ a2^4 + 4.05171566621\ a4^4 + 715\,715.\ a6 + 2300.51250017\ a6^2 + \\
&\quad 3.65673952643\ a6^3 + 0.00543617066614\ a6^4 + a4^3\,(645.740333327 + 3.04719540558\ a6) + \\
&\quad a2^3\,(194\,038.288889 + 3495.9925\ a4 + 628.961666667\ a6) + \\
&\quad a4^2\,(73\,783.71 + 344.055634189\ a6 + 0.868747215165\ a6^2) + \\
&\quad a4\,(4.1225184 \times 10^6 + 26\,013.4874998\ a6 + 61.324427966\ a6^2 + 0.111432481455\ a6^3) + \\
&\quad a2^2\,(3.435432 \times 10^6 + 848.013833332\ a4^2 + 15\,152.6375001\ a6 + \\
&\qquad 28.3015933307\ a6^2 + a4\,(86\,146.0600001 + 308.720965076\ a6)) + \\
&\quad a2\,(2.88576288 \times 10^7 + 94.0027849263\ a4^3 + 175\,675.5\ a6 + 403.153538615\ a6^2 + \\
&\qquad 0.606775186607\ a6^3 + a4^2\,(12\,860.3475 + 52.0568215461\ a6) + \\
&\qquad a4\,(1.002001 \times 10^6 + 4545.97\ a6 + 9.69052583957\ a6^2)))) / \\
&(12\,012. + 150.15\ a2^2 + 5.21354166667\ a4^2 + 53.625\ a6 + 0.2255859375\ a6^2 + \\
&\quad a4\,(300.3 + 2.1328125\ a6) + a2\,(2002. + 53.625\ a4 + 10.4270833333\ a6))^4 + \\
&(12.796875 \times (2002. + 300.3\ a2 + 53.625\ a4 + 10.4270833333\ a6) \times \\
&\quad (9.6192096 \times 10^7 + 5530.525\ a2^4 + 4.05171566621\ a4^4 + 715\,715.\ a6 + 2300.51250017\ a6^2 +
\end{aligned}
$$

$$3.65673952643\ a6^3 + 0.00543617066614\ a6^4 + a4^3\,(645.740333327 + 3.04719540558\ a6) +$$
$$a2^3\,(194\,038.288889 + 3495.9925\ a4 + 628.961666667\ a6) +$$
$$a4^2\,(73\,783.71 + 344.055634189\ a6 + 0.868747215165\ a6^2) +$$
$$a4\,(4.1225184 \times 10^6 + 26\,013.4874998\ a6 + 61.324427966\ a6^2 + 0.111432481455\ a6^3) +$$
$$a2^2\,(3.435432 \times 10^6 + 848.013833332\ a4^2 + 15\,152.6375001\ a6 +$$
$$28.3015933307\ a6^2 + a4\,(86\,146.0600001 + 308.720965076\ a6)) +$$
$$a2\,(2.88576288 \times 10^7 + 94.0027849263\ a4^3 + 175\,675.5\ a6 + 403.153538615\ a6^2 +$$
$$0.606775186607\ a6^3 + a4^2\,(12\,860.3475 + 52.0568215461\ a6) +$$
$$a4\,(1.002001 \times 10^6 + 4545.97\ a6 + 9.69052583957\ a6^2)))) /$$
$$(12\,012. + 150.15\ a2^2 + 5.21354166667\ a4^2 + 53.625\ a6 + 0.2255859375\ a6^2 +$$
$$a4\,(300.3 + 2.1328125\ a6) + a2\,(2002. + 53.625\ a4 + 10.4270833333\ a6))^4$$

In[13]:=
```
DEp[-1.7847039417885724` , 1.0617227199452226` , -0.25264809644969644` ]
```

Out[13]=
```
0.0000727862428794
```

The value of ϵ is relatively insensitive to the parameters:

In[14]:=
```
Plot3D[ϵ[-1.8, a4, a6], {a4, 0, 2}, {a6, -1, 2}]
```

Out[14]=