```
In[256]:=  A - BB > 0
           CC - CBAC ≥ 0
           ABC - CACA > 0

Out[256]=  A - BB > 0

Out[257]=  -CBAC + CC ≥ 0

Out[258]=  ABC - CACA > 0

In[259]:=  Clear[a11, a12, a21, a22,
             b11, b12, b21, b22,
             c11, c12, c21, c22];
           FA := {{a11, a12}, {a21, a22}};
           FB := {{b11, b12}, {b21, b22}};
           FC := {{c11, c12}, {c21, c22}};
           Ch1 := FA - FB.FB;
           Ch2 := FC.FC - FC.FB.FA.FC;

In[265]:=  Ch1

Out[265]=  {{a11 - b11² - b12 b21, a12 - b11 b12 - b12 b22}, {a21 - b11 b21 - b21 b22, a22 - b12 b21 - b22²}}

In[266]:=  FindInstance[a11 - b11² - b12 b21 > 0 && a12 - b11 b12 - b12 b22 ≥ 0 && a21 - b11 b21 - b21 b22 ≥ 0 &&
             a22 - b12 b21 - b22² ≥ 0 && a11 > 0 && a12 ≥ 0 && a21 ≥ 0 && a22 ≥ 0 && b11 > 0 &&
             b12 ≥ 0 && b21 ≥ 0 && b22 ≥ 0, {a11, a12, a21, a22, b11, b12, b21, b22}, Integers]

Out[266]=  {{a11 → 5, a12 → 0, a21 → 0, a22 → 0, b11 → 2, b12 → 0, b21 → 0, b22 → 0}}

In[267]:=  Begin["Ctx0`"];
           a11 = 5;
           a12 = a21 = a22 = 0;
           b11 = 2;
           b12 = b21 = b22 = 0;
           Ch2

Out[272]=  {{-9 c11² + c12 c21, -9 c11 c12 + c12 c22}, {-9 c11 c21 + c21 c22, -9 c12 c21 + c22²}}

In[273]:=  FindInstance[-9 c11² + c12 c21 > 0 && -9 c11 c12 + c12 c22 ≥ 0 && -9 c11 c21 + c21 c22 ≥ 0 &&
             -9 c12 c21 + c22² ≥ 0 && c11 > 0 && c12 ≥ 0 && c21 ≥ 0 && c22 ≥ 0, {c11, c12, c21, c22}, Integers]

Out[273]=  {{c11 → 1, c12 → 68, c21 → 72, c22 → 286}}

In[274]:=  Begin["Ctx1`"];

In[284]:=  c11 = 1;
           c12 = 68;
           c21 = 72;
           c22 = 286;
           fuel = {2, 1}

Out[288]=  {2, 1}
```

In[289]:= **Ch1**
Ch1.fuel

Out[289]= {{1, 0}, {0, 0}}

Out[290]= {2, 0}

In[291]:= **Ch2**
Ch2.fuel

Out[291]= {{4887, 18 836}, {19 944, 37 732}}

Out[292]= {28 610, 77 620}

In[293]:= **Ch3 = FA.FB.FC – FC.FA.FC.FA**

Out[293]= {{-15, 680}, {-1800, 0}}

In[294]:= **Ch3.fuel**

Out[294]= {650, -3600}

In[283]:= **End[]**

Out[283]= Ctx1`