```
In[208]:=  f = 126 * x^6 - 54 * x^5 - 28 * x^3 + 12 * x^2 + 14 * x - 6;
```

```
In[209]:=  g = -42 * x^5 + 39 * x^4 - 9 * x^3 - 189 * x + 81;
          f // TraditionalForm
```

Out[210]//TraditionalForm=

$$126\, x^6 - 54\, x^5 - 28\, x^3 + 12\, x^2 + 14\, x - 6$$

```
In[66]:=  g // TraditionalForm
```

Out[66]//TraditionalForm=

$$-42\, x^5 + 39\, x^4 - 9\, x^3 - 189\, x + 81$$

```
PolynomialGCD[f, g]
(*С помощью встроенной функции
 вычисляем наибольший общий делитель ряда*)
```

Out[216]= -3 + 7 x

```
In[160]:=  myBezoutPoly[aa_, bb_] := Module[
                  {a = aa, b = bb
                      , x0 = 1
                      , xx = 0
                      , y0 = 0
                      , yy = 1
                      , q, r
                  }
                  ,
              While[
                      Not[SameQ[b, 0]]
                      ,
                          q = PolynomialQuotient [a, b, x];
                          r = PolynomialRemainder [a, b, x];
                          {a, b} = {b, r};
                          {x0, xx} = {xx, (x0 - xx * q) // ExpandAll};
                          {y0, yy} = {yy, (y0 - yy * q) // ExpandAll};

                  ];
                  {a, x0, y0}
              ];
```

```
In[225]:=  {gcdEuclid , x0, y0} = myBezoutPoly[f, g];
          {wolframGCD , {wolframU , wolframV}} = PolynomialExtendedGCD [f, g, x];
```

```
In[222]:=  normalizePoly[poly_] := poly / Coefficient[
                 poly
                 , x
                 , Exponent[poly, x]
             ] // ExpandAll ;
```

```
In[223]:=  normalizePoly[gcdEuclid]
```

$$Out[223]= \quad -\frac{3}{7} + x$$

```
In[228]:=  normalizePoly[gcdEuclid] == normalizePoly[wolframGCD] // FullSimplify
```

```
Out[228]=   True
```

```
In[217]:=  FullSimplify[gcdEuclid == x0 * f + y0 * g]
```

```
Out[217]=   True
```