# OpenGeoProver Output for conjecture "geothm\_zadatak"

Wu's method used

October 2, 2016

# 1 Invoking the theorem prover

The used proving method is Wu's method. The input system is:

```
p_1 = 2x_1 -
 p_2 = 4x_2^2 - 3
     = 3x_3 - x_2
 p_4 = 3x_4^2 - 2
 p_5 = x_5 - x_1
     = x_6 - x_3
 p_7 = x_7 - x_4 - x_2
     = x_8 - x_4 x_2
     = x_9 + x_4x_1 - x_4
p_{10} = x_{10} - x_3 x_1 + x_3 + x_2 x_1 - x_2
p_{11} = x_{11} - x_4 x_2 -
p_{12} = x_{12} + x_4 x_1
p_{13} = x_{13} - x_3 x_1 + x_2 x_1
     = -x_{18}x_{11} + x_{18} + x_{17}x_{12} - x_{12}
p_{15} = x_{19}x_{11} - x_{19} - x_{17}x_{13} + x_{13}
p_{16} = -x_{18}x_8 + x_{17}x_9
p_{17} = -x_{15}x_8 + x_{14}x_9
     = x_{16}x_5 - x_{16}x_1 - x_{14}x_7 + x_{14}x_4 + x_7x_1 - x_5x_4
     = -x_{16}x_6 + x_{16}x_3 + x_{15}x_7 - x_{15}x_4 - x_7x_3 + x_6x_4
p_{19}
```

# 1.1 Triangulation, step 1

Choosing variable: Trying the variable with index 19.

Variable  $x_{19}$  selected: The number of polynomials with this variable, with indexes from 1 to 19, is 1.

Single polynomial with chosen variable: Chosen polynomial is  $p_{15}$ . No reduction needed.

The triangular system has not been changed.

# 1.2 Triangulation, step 2

Choosing variable: Trying the variable with index 18.

Variable  $x_{18}$  selected: The number of polynomials with this variable, with indexes from 1 to 18, is 2.

Minimal degrees: 2 polynomial(s) with degree 1.

**Polynomial with linear degree:** Removing variable  $x_{18}$  from all other polynomials by reducing them with polynomial  $p_{14}$  from previous step.

Finished a triangulation step, the current system is:

$$\begin{array}{rclcrcl} p_1 & = & 2x_1 - \\ p_2 & = & 4x_2^2 - 3 \\ p_3 & = & 3x_3 - x_2 \\ p_4 & = & 3x_4^2 - 2 \\ p_5 & = & x_5 - x_1 \\ p_6 & = & x_6 - x_3 \\ p_7 & = & x_7 - x_4 - x_2 \\ p_8 & = & x_8 - x_4 x_2 \\ p_9 & = & x_9 + x_4 x_1 - x_4 \\ p_{10} & = & x_{10} - x_3 x_1 + x_3 + x_2 x_1 - x_2 \\ p_{11} & = & x_{11} - x_4 x_2 - \\ p_{12} & = & x_{12} + x_4 x_1 \\ p_{13} & = & x_{13} - x_3 x_1 + x_2 x_1 \\ p_{14} & = & -x_{15} x_8 + x_{14} x_9 \\ p_{15} & = & x_{16} x_5 - x_{16} x_1 - x_{14} x_7 + x_{14} x_4 + x_7 x_1 - x_5 x_4 \\ p_{16} & = & -x_{16} x_6 + x_{16} x_3 + x_{15} x_7 - x_{15} x_4 - x_7 x_3 + x_6 x_4 \\ p_{17} & = & x_{17} x_{12} x_8 - x_{17} x_{11} x_9 + x_{17} x_9 - x_{12} x_8 \\ p_{18} & = & -x_{18} x_{11} + x_{18} + x_{17} x_{12} - x_{12} \\ p_{19} & = & x_{19} x_{11} - x_{19} - x_{17} x_{13} + x_{13} \end{array}$$

# 1.3 Triangulation, step 3

Choosing variable: Trying the variable with index 17.

Variable  $x_{17}$  selected: The number of polynomials with this variable, with indexes from 1 to 17, is 1.

Single polynomial with chosen variable: Chosen polynomial is  $p_{17}$ . No reduction needed.

The triangular system has not been changed.

#### 1.4 Triangulation, step 4

Choosing variable: Trying the variable with index 16.

Variable  $x_{16}$  selected: The number of polynomials with this variable, with indexes from 1 to 16, is 2.

Minimal degrees: 2 polynomial(s) with degree 1.

**Polynomial with linear degree:** Removing variable  $x_{16}$  from all other polynomials by reducing them with polynomial  $p_{15}$  from previous step.

Finished a triangulation step, the current system is:

$$\begin{array}{rclcrcl} p_1 &=& 2x_1 - \\ p_2 &=& 4x_2^2 - 3 \\ p_3 &=& 3x_3 - x_2 \\ p_4 &=& 3x_4^2 - 2 \\ p_5 &=& x_5 - x_1 \\ p_6 &=& x_6 - x_3 \\ p_7 &=& x_7 - x_4 - x_2 \\ p_8 &=& x_8 - x_4 x_2 \\ p_9 &=& x_9 + x_4 x_1 - x_4 \\ p_{10} &=& x_{10} - x_3 x_1 + x_3 + x_2 x_1 - x_2 \\ p_{11} &=& x_{11} - x_4 x_2 - \\ p_{12} &=& x_{12} + x_4 x_1 \\ p_{13} &=& x_{13} - x_3 x_1 + x_2 x_1 \\ p_{14} &=& -x_{15} x_8 + x_{14} x_9 \\ p_{15} &=& x_{15} x_7 x_5 - x_{15} x_7 x_1 - x_{15} x_5 x_4 + x_{15} x_4 x_1 - x_{14} x_7 x_6 + x_{14} x_7 x_3 + x_{14} x_6 x_4 - x_{14} x_4 x_3 + x_7 x_6 x_1 - x_7 x_5 x_3 \\ && -x_6 x_4 x_1 + x_5 x_4 x_3 \\ p_{16} &=& x_{16} x_5 - x_{16} x_1 - x_{14} x_7 + x_{14} x_4 + x_7 x_1 - x_5 x_4 \\ p_{17} &=& x_{17} x_{12} x_8 - x_{17} x_{11} x_9 + x_{17} x_9 - x_{12} x_8 \\ p_{18} &=& -x_{18} x_{11} + x_{18} + x_{17} x_{12} - x_{12} \\ p_{19} &=& x_{19} x_{11} - x_{19} - x_{17} x_{13} + x_{13} \end{array}$$

#### 1.5 Triangulation, step 5

Choosing variable: Trying the variable with index 15.

Variable  $x_{15}$  selected: The number of polynomials with this variable, with indexes from 1 to 15, is 2.

Minimal degrees: 2 polynomial(s) with degree 1.

**Polynomial with linear degree:** Removing variable  $x_{15}$  from all other polynomials by reducing them with polynomial  $p_{14}$  from previous step.

Finished a triangulation step, the current system is:

```
p_1 = 2x_1 -
 p_2 = 4x_2^2 - 3
 p_3 = 3x_3 - x_2
 p_4 = 3x_4^2 - 2
 p_5 = x_5 - x_1
 p_6 = x_6 - x_3
 p_7 = x_7 - x_4 - x_2
 p_8 = x_8 - x_4 x_2
    = x_9 + x_4x_1 - x_4
p_{10} = x_{10} - x_3 x_1 + x_3 + x_2 x_1 - x_2
p_{11} = x_{11} - x_4 x_2 -
p_{12} = x_{12} + x_4 x_1
p_{13} = x_{13} - x_3x_1 + x_2x_1
p_{14} = -x_{14}x_{9}x_{7}x_{5} + x_{14}x_{9}x_{7}x_{1} + x_{14}x_{9}x_{5}x_{4} - x_{14}x_{9}x_{4}x_{1} +
           x_{14}x_8x_7x_6 - x_{14}x_8x_7x_3 - x_{14}x_8x_6x_4 + x_{14}x_8x_4x_3
            -x_8x_7x_6x_1 + x_8x_7x_5x_3 + x_8x_6x_4x_1 - x_8x_5x_4x_3
p_{15} = -x_{15}x_8 + x_{14}x_9
p_{16} = x_{16}x_5 - x_{16}x_1 - x_{14}x_7 + x_{14}x_4 + x_7x_1 - x_5x_4
      = x_{17}x_{12}x_8 - x_{17}x_{11}x_9 + x_{17}x_9 - x_{12}x_8
p_{18} = -x_{18}x_{11} + x_{18} + x_{17}x_{12} - x_{12}
p_{19} = x_{19}x_{11} - x_{19} - x_{17}x_{13} + x_{13}
```

# 1.6 Triangulation, step 6

Choosing variable: Trying the variable with index 14.

Variable  $x_{14}$  selected: The number of polynomials with this variable, with indexes from 1 to 14, is 1.

Single polynomial with chosen variable: Chosen polynomial is  $p_{14}$ . No reduction needed.

The triangular system has not been changed.

# 1.7 Triangulation, step 7

Choosing variable: Trying the variable with index 13.

Variable  $x_{13}$  selected: The number of polynomials with this variable, with indexes from 1 to 13, is 1.

Single polynomial with chosen variable: Chosen polynomial is  $p_{13}$ . No reduction needed.

The triangular system has not been changed.

# 1.8 Triangulation, step 8

Choosing variable: Trying the variable with index 12.

Variable  $x_{12}$  selected: The number of polynomials with this variable, with indexes from 1 to 12, is 1.

Single polynomial with chosen variable: Chosen polynomial is  $p_{12}$ . No reduction needed.

The triangular system has not been changed.

# 1.9 Triangulation, step 9

Choosing variable: Trying the variable with index 11.

**Variable**  $x_{11}$  **selected:** The number of polynomials with this variable, with indexes from 1 to 11, is 1.

Single polynomial with chosen variable: Chosen polynomial is  $p_{11}$ . No reduction needed.

The triangular system has not been changed.

# 1.10 Triangulation, step 10

Choosing variable: Trying the variable with index 10.

Variable  $x_{10}$  selected: The number of polynomials with this variable, with indexes from 1 to 10, is 1.

Single polynomial with chosen variable: Chosen polynomial is  $p_{10}$ . No reduction needed.

The triangular system has not been changed.

#### 1.11 Triangulation, step 11

Choosing variable: Trying the variable with index 9.

Variable  $x_9$  selected: The number of polynomials with this variable, with indexes from 1 to 9, is 1.

Single polynomial with chosen variable: Chosen polynomial is  $p_9$ . No reduction needed.

The triangular system has not been changed.

#### 1.12 Triangulation, step 12

Choosing variable: Trying the variable with index 8.

Variable  $x_8$  selected: The number of polynomials with this variable, with indexes from 1 to 8, is 1.

Single polynomial with chosen variable: Chosen polynomial is  $p_8$ . No reduction needed.

The triangular system has not been changed.

# 1.13 Triangulation, step 13

Choosing variable: Trying the variable with index 7.

**Variable**  $x_7$  **selected:** The number of polynomials with this variable, with indexes from 1 to 7, is 1.

Single polynomial with chosen variable: Chosen polynomial is  $p_7$ . No reduction needed.

The triangular system has not been changed.

# 1.14 Triangulation, step 14

Choosing variable: Trying the variable with index 6.

Variable  $x_6$  selected: The number of polynomials with this variable, with indexes from 1 to 6, is 1.

Single polynomial with chosen variable: Chosen polynomial is  $p_6$ . No reduction needed.

The triangular system has not been changed.

#### 1.15 Triangulation, step 15

Choosing variable: Trying the variable with index 5.

Variable  $x_5$  selected: The number of polynomials with this variable, with indexes from 1 to 5, is 1.

Single polynomial with chosen variable: Chosen polynomial is  $p_5$ . No reduction needed.

The triangular system has not been changed.

#### 1.16 Triangulation, step 16

Choosing variable: Trying the variable with index 4.

Variable  $x_4$  selected: The number of polynomials with this variable, with indexes from 1 to 4, is 1.

Single polynomial with chosen variable: Chosen polynomial is  $p_4$ . No reduction needed.

The triangular system has not been changed.

# 1.17 Triangulation, step 17

Choosing variable: Trying the variable with index 3.

Variable  $x_3$  selected: The number of polynomials with this variable, with indexes from 1 to 3, is 1.

Single polynomial with chosen variable: Chosen polynomial is  $p_3$ . No reduction needed.

The triangular system has not been changed.

# 1.18 Triangulation, step 18

Choosing variable: Trying the variable with index 2.

Variable  $x_2$  selected: The number of polynomials with this variable, with indexes from 1 to 2, is 1.

Single polynomial with chosen variable: Chosen polynomial is  $p_2$ . No reduction needed.

The triangular system has not been changed.

#### 1.19 Triangulation, step 19

Choosing variable: Trying the variable with index 1.

Variable  $x_1$  selected: The number of polynomials with this variable, with indexes from 1 to 1, is 1.

Single polynomial with chosen variable: Chosen polynomial is  $p_1$ . No reduction needed.

The triangular system has not been changed.

The triangular system is:

$$\begin{array}{rclcrcl} p_1 & = & 2x_1 - \\ p_2 & = & 4x_2^2 - 3 \\ p_3 & = & 3x_3 - x_2 \\ p_4 & = & 3x_4^2 - 2 \\ p_5 & = & x_5 - x_1 \\ p_6 & = & x_6 - x_3 \\ p_7 & = & x_7 - x_4 - x_2 \\ p_8 & = & x_8 - x_4 x_2 \\ p_9 & = & x_9 + x_4 x_1 - x_4 \\ p_{10} & = & x_{10} - x_3 x_1 + x_3 + x_2 x_1 - x_2 \\ p_{11} & = & x_{11} - x_4 x_2 - \\ p_{12} & = & x_{12} + x_4 x_1 \\ p_{13} & = & x_{13} - x_3 x_1 + x_2 x_1 \\ p_{14} & = & -x_{14} x_9 x_7 x_5 + x_{14} x_9 x_7 x_1 + x_{14} x_9 x_5 x_4 - x_{14} x_9 x_4 x_1 + \\ & & x_{14} x_8 x_7 x_6 - x_{14} x_8 x_7 x_3 - x_{14} x_8 x_6 x_4 + x_{14} x_8 x_4 x_3 \\ & & -x_8 x_7 x_6 x_1 + x_8 x_7 x_5 x_3 + x_8 x_6 x_4 x_1 - x_8 x_5 x_4 x_3 \\ p_{15} & = & -x_{15} x_8 + x_{14} x_9 \\ p_{16} & = & x_{16} x_5 - x_{16} x_1 - x_{14} x_7 + x_{14} x_4 + x_7 x_1 - x_5 x_4 \\ p_{17} & = & x_{17} x_{12} x_8 - x_{17} x_{11} x_9 + x_{17} x_9 - x_{12} x_8 \\ p_{18} & = & -x_{18} x_{11} + x_{18} + x_{17} x_{12} - x_{12} \\ p_{19} & = & x_{19} x_{11} - x_{19} - x_{17} x_{13} + x_{13} \end{array}$$

# 2 Final Remainder

# 2.1 Final remainder for conjecture geothm\_zadatak

Calculating final remainder of the conclusion:

$$g = -x_{17} + x_{14}$$

with respect to the triangular system.

1. Pseudo remainder with  $p_{19}$  over variable  $x_{19}$ :

$$g = -x_{17} + x_{14}$$

2. Pseudo remainder with  $p_{18}$  over variable  $x_{18}$ :

$$g = -x_{17} + x_{14}$$

3. Pseudo remainder with  $p_{17}$  over variable  $x_{17}$ :

$$g = x_{14}x_{12}x_8 - x_{14}x_{11}x_9 + x_{14}x_9 - x_{12}x_8$$

4. Pseudo remainder with  $p_{16}$  over variable  $x_{16}$ :

$$g = x_{14}x_{12}x_8 - x_{14}x_{11}x_9 + x_{14}x_9 - x_{12}x_8$$

5. Pseudo remainder with  $p_{15}$  over variable  $x_{15}$ :

$$g = x_{14}x_{12}x_8 - x_{14}x_{11}x_9 + x_{14}x_9 - x_{12}x_8$$

6. Pseudo remainder with  $p_{14}$  over variable  $x_{14}$ :

$$\begin{array}{lll} g & = & x_{12}x_{9}x_{8}x_{7}x_{5} - x_{12}x_{9}x_{8}x_{7}x_{1} - x_{12}x_{9}x_{8}x_{5}x_{4} + \\ & & x_{12}x_{9}x_{8}x_{4}x_{1} + x_{12}x_{8}^{2}x_{7}x_{6}x_{1} - x_{12}x_{8}^{2}x_{7}x_{6} \\ & & -x_{12}x_{8}^{2}x_{7}x_{5}x_{3} + x_{12}x_{8}^{2}x_{7}x_{3} - x_{12}x_{8}^{2}x_{6}x_{4}x_{1} + \\ & & x_{12}x_{8}^{2}x_{6}x_{4} + x_{12}x_{8}^{2}x_{5}x_{4}x_{3} - x_{12}x_{8}^{2}x_{4}x_{3} \\ & & -x_{11}x_{9}x_{8}x_{7}x_{6}x_{1} + x_{11}x_{9}x_{8}x_{7}x_{5}x_{3} + \\ & & x_{11}x_{9}x_{8}x_{6}x_{4}x_{1} - x_{11}x_{9}x_{8}x_{5}x_{4}x_{3} + x_{9}x_{8}x_{7}x_{6}x_{1} \\ & & -x_{9}x_{8}x_{7}x_{5}x_{3} - x_{9}x_{8}x_{6}x_{4}x_{1} + x_{9}x_{8}x_{5}x_{4}x_{3} \end{array}$$

7. Pseudo remainder with  $p_{13}$  over variable  $x_{13}$ :

$$\begin{array}{lll} g & = & x_{12}x_{9}x_{8}x_{7}x_{5} - x_{12}x_{9}x_{8}x_{7}x_{1} - x_{12}x_{9}x_{8}x_{5}x_{4} + \\ & & x_{12}x_{9}x_{8}x_{4}x_{1} + x_{12}x_{8}^{2}x_{7}x_{6}x_{1} - x_{12}x_{8}^{2}x_{7}x_{6} \\ & & -x_{12}x_{8}^{2}x_{7}x_{5}x_{3} + x_{12}x_{8}^{2}x_{7}x_{3} - x_{12}x_{8}^{2}x_{6}x_{4}x_{1} + \\ & & x_{12}x_{8}^{2}x_{6}x_{4} + x_{12}x_{8}^{2}x_{5}x_{4}x_{3} - x_{12}x_{8}^{2}x_{4}x_{3} \\ & & -x_{11}x_{9}x_{8}x_{7}x_{6}x_{1} + x_{11}x_{9}x_{8}x_{7}x_{5}x_{3} + \\ & & x_{11}x_{9}x_{8}x_{6}x_{4}x_{1} - x_{11}x_{9}x_{8}x_{5}x_{4}x_{3} + x_{9}x_{8}x_{7}x_{6}x_{1} \\ & & -x_{9}x_{8}x_{7}x_{5}x_{3} - x_{9}x_{8}x_{6}x_{4}x_{1} + x_{9}x_{8}x_{5}x_{4}x_{3} \end{array}$$

8. Pseudo remainder with  $p_{12}$  over variable  $x_{12}$ :

$$g = -x_{11}x_{9}x_{8}x_{7}x_{6}x_{1} + x_{11}x_{9}x_{8}x_{7}x_{5}x_{3} + x_{11}x_{9}x_{8}x_{6}x_{4}x_{1} - x_{11}x_{9}x_{8}x_{5}x_{4}x_{3} + x_{9}x_{8}x_{7}x_{6}x_{1} -x_{9}x_{8}x_{7}x_{5}x_{4}x_{1} - x_{9}x_{8}x_{7}x_{5}x_{3} + x_{9}x_{8}x_{7}x_{4}x_{1}^{2} -x_{9}x_{8}x_{6}x_{4}x_{1} + x_{9}x_{8}x_{5}x_{4}^{2}x_{1} + x_{9}x_{8}x_{5}x_{4}x_{3} -x_{9}x_{8}x_{4}^{2}x_{1}^{2} - x_{8}^{2}x_{7}x_{6}x_{4}x_{1}^{2} +$$

$$x_8^2x_7x_6x_4x_1 + x_8^2x_7x_5x_4x_3x_1 \\ -x_8^2x_7x_4x_3x_1 + x_8^2x_6x_4^2x_1^2 \\ -x_8^2x_6x_4^2x_1 - x_8^2x_5x_4^2x_3x_1 + \\ x_8^2x_4^2x_3x_1$$

9. Pseudo remainder with  $p_{11}$  over variable  $x_{11}$ :

$$\begin{array}{rcl} g & = & -x_9x_8x_7x_6x_4x_2x_1 + x_9x_8x_7x_5x_4x_3x_2 \\ & -x_9x_8x_7x_5x_4x_1 + x_9x_8x_7x_4x_1^2 + \\ & x_9x_8x_6x_4^2x_2x_1 - x_9x_8x_5x_4^2x_3x_2 + \\ & x_9x_8x_5x_4^2x_1 - x_9x_8x_4^2x_1^2 \\ & -x_8^2x_7x_6x_4x_1^2 + x_8^2x_7x_6x_4x_1 + \\ & x_8^2x_7x_5x_4x_3x_1 - x_8^2x_7x_4x_3x_1 + \\ & x_8^2x_6x_4^2x_1^2 - x_8^2x_6x_4^2x_1 \\ & -x_8^2x_5x_4^2x_3x_1 + x_8^2x_4^2x_3x_1 \end{array}$$

10. Pseudo remainder with  $p_{10}$  over variable  $x_{10}$ :

$$\begin{array}{rcl} g & = & -x_9x_8x_7x_6x_4x_2x_1 + x_9x_8x_7x_5x_4x_3x_2 \\ & -x_9x_8x_7x_5x_4x_1 + x_9x_8x_7x_4x_1^2 + \\ & x_9x_8x_6x_4^2x_2x_1 - x_9x_8x_5x_4^2x_3x_2 + \\ & x_9x_8x_5x_4^2x_1 - x_9x_8x_4^2x_1^2 \\ & -x_8^2x_7x_6x_4x_1^2 + x_8^2x_7x_6x_4x_1 + \\ & x_8^2x_7x_5x_4x_3x_1 - x_8^2x_7x_4x_3x_1 + \\ & x_8^2x_6x_4^2x_1^2 - x_8^2x_6x_4^2x_1 \\ & -x_8^2x_5x_4^2x_3x_1 + x_8^2x_4^2x_3x_1 \end{array}$$

11. Pseudo remainder with  $p_9$  over variable  $x_9$ :

$$\begin{array}{ll} g&=&-x_8^2x_7x_6x_4x_1^2+x_8^2x_7x_6x_4x_1+\\ &&x_8^2x_7x_5x_4x_3x_1-x_8^2x_7x_4x_3x_1+\\ &&x_8^2x_6x_4^2x_1^2-x_8^2x_6x_4^2x_1\\ &&-x_8^2x_5x_4^2x_3x_1+x_8^2x_4^2x_3x_1+\\ &&x_8x_7x_6x_4^2x_2x_1^2-x_8x_7x_6x_4^2x_2x_1\\ &&-x_8x_7x_5x_4^2x_3x_2x_1+x_8x_7x_5x_4^2x_3x_2+\\ &&x_8x_7x_5x_4^2x_1^2-x_8x_7x_5x_4^2x_1\\ &&-x_8x_7x_4^2x_1^3+x_8x_7x_4^2x_1^2\\ &&-x_8x_6x_4^3x_2x_1^2+x_8x_6x_4^3x_2x_1+\\ &&x_8x_5x_4^3x_3x_2x_1-x_8x_5x_4^3x_3x_2\\ &&-x_8x_5x_4^3x_1^2+x_8x_5x_4^3x_1+x_8x_4^3x_1^3\\ &&-x_8x_4^3x_1^2+x_8x_5x_4^3x_1+x_8x_4^3x_1^3\\ &&-x_8x_4^3x_1^2\end{array}$$

12. Pseudo remainder with  $p_8$  over variable  $x_8$ :

$$g = x_7 x_5 x_4^3 x_3 x_2^2 + x_7 x_5 x_4^3 x_2 x_1^2$$

$$- x_7 x_5 x_4^3 x_2 x_1 - x_7 x_4^3 x_3 x_2^2 x_1$$

$$- x_7 x_4^3 x_2 x_1^3 + x_7 x_4^3 x_2 x_1^2 - x_5 x_4^4 x_3 x_2^2$$

$$- x_5 x_4^4 x_2 x_1^2 + x_5 x_4^4 x_2 x_1 + x_4^4 x_3 x_2^2 x_1 + x_4^4 x_2 x_1^3 - x_4^4 x_2 x_1^2$$

13. Pseudo remainder with  $p_7$  over variable  $x_7$ :

$$g = x_5 x_4^3 x_3 x_2^3 + x_5 x_4^3 x_2^2 x_1^2 - x_5 x_4^3 x_2^2 x_1 - x_4^3 x_3 x_2^3 x_1 - x_4^3 x_2^2 x_1^3 + x_4^3 x_2^2 x_1^2$$

14. Pseudo remainder with  $p_6$  over variable  $x_6$ :

$$g = x_5 x_4^3 x_3 x_2^3 + x_5 x_4^3 x_2^2 x_1^2 - x_5 x_4^3 x_2^2 x_1$$
$$-x_4^3 x_3 x_2^3 x_1 - x_4^3 x_2^2 x_1^3 + x_4^3 x_2^2 x_1^2$$

15. Pseudo remainder with  $p_5$  over variable  $x_5$ :

$$g = 0$$

16. Pseudo remainder with  $p_4$  over variable  $x_4$ :

$$g = 0$$

17. Pseudo remainder with  $p_3$  over variable  $x_3$ :

$$g = 0$$

18. Pseudo remainder with  $p_2$  over variable  $x_2$ :

$$g = 0$$

19. Pseudo remainder with  $p_1$  over variable  $x_1$ :

$$g = 0$$

# 3 Prover results

Status: Theorem has been proved.

 ${\bf Space\ Complexity:}\ \ {\bf The\ biggest\ polynomial\ obtained\ during\ prover\ execution}$ 

contains 24 terms.

**Time Complexity:** Time spent by the prover is 0.107 seconds.

# 4 NDG Conditions

# NDG Conditions in readable form

• Failed to translate NDG Conditions to readable form