

# OpenGeoProver Output for conjecture “geothm\_zadatak”

Wu’s method used

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## 1 Invoking the theorem prover

The used proving method is Wu’s method.

The input system is:

$$\begin{aligned}p_1 &= 2x_4 - x_2 \\p_2 &= 2x_5 - x_3 - x_1 \\p_3 &= 2x_6 - x_1\end{aligned}$$

### 1.1 Triangulation, step 1

**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  $p_2$ . No reduction needed.

The triangular system has not been changed.

### 1.2 Triangulation, step 2

**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  $p_1$ . No reduction needed.

The triangular system has not been changed.

### 1.3 Triangulation, step 3

**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:

$$\begin{aligned} p_1 &= 2x_6 - x_1 \\ p_2 &= 2x_4 - x_2 \\ p_3 &= 2x_5 - x_3 - x_1 \end{aligned}$$

## 2 Final Remainder

### 2.1 Final remainder for conjecture `geothm_zadatak`

Calculating final remainder of the conclusion:

$$g = 4x_6^2 - 8x_6x_5 + 4x_5^2 + 4x_4^2 - x_3^2 - x_2^2$$

with respect to the triangular system.

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

$$g = 4x_6^2 - 8x_6x_5 + 4x_5x_1 + 4x_4^2 - x_2^2 - x_1^2$$

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

$$g = 4x_6^2 - 8x_6x_5 + 4x_5x_1 - x_1^2$$

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

$$g = 0$$

## 3 Prover results

**Status:** Theorem has been proved.

**Space Complexity:** The biggest polynomial obtained during prover execution contains 7 terms.

**Time Complexity:** Time spent by the prover is 0.019 seconds.

## 4 NDG Conditions

### NDG Conditions in readable form

- There are no NDG conditions for this theorem