Var. 1 (131203) *Adeel*
1. Find a canonical form of a curve of degree 2 given by equation $3x^2 + 7y^2 + 3xy + 3x - 11y = 143$
   Find coordinates of focuses in the original coordinate system.
2. Determine the type of the surface of degree 2 given by equation
   $-5x^2 - 4y^2 - 4z^2 - 6xy - 6xz - 12yz - 4x + 6y + 2z = 4$
   Find coordinates of the center (if it exists).

Var. 2 (131203) *Ali Ovais*
1. Find a canonical form of a curve of degree 2 given by equation $19x^2 - 5y^2 + 10xy + 8x + 40y = 86$
   Find coordinates of focuses in the original coordinate system.
2. Determine the type of the surface of degree 2 given by equation
   $3x^2 + 3y^2 + 5z^2 - 2xy + 2xz - 6yz - 2x + 6y - 2z = -4$
   Find coordinates of the center (if it exists).

Var. 3 (131203) *Faraha*
1. Find a canonical form of a curve of degree 2 given by equation $17x^2 - 31y^2 - 14xy + 48x + 48y = 4$
   Find coordinates of focuses in the original coordinate system.
2. Determine the type of the surface of degree 2 given by equation
   $x^2 + 5y^2 + 2z^2 + 2xy + 2xz - 2yz + 2x + 6y + 2z = -4$
   Find coordinates of the center (if it exists).

Var. 4 (131203) *Kamran*
1. Find a canonical form of a curve of degree 2 given by equation $5x^2 + 8y^2 + 4xy - 28x - 40y = -67$
   Find coordinates of focuses in the original coordinate system.
2. Determine the type of the surface of degree 2 given by equation
   $4x^2 + 4y^2 - 2z^2 + 10xy + 10xz + 2yz + 2x + 4y - 2z = -4$
   Find coordinates of the center (if it exists).

Var. 5 (131203) *Ahsan Khan*
1. Find a canonical form of a curve of degree 2 given by equation $4x^2 - y^2 + 12xy + 16x - 16y = 34$
   Find coordinates of focuses in the original coordinate system.
2. Determine the type of the surface of degree 2 given by equation
   $3x^2 + 6y^2 + 5z^2 - 8xy - 2xz + 2yz + 4x - 4y - 2z = -1$
   Find coordinates of the center (if it exists).

Var. 6 (131203) *Yameen*
1. Find a canonical form of a curve of degree 2 given by equation $16x^2 + 19y^2 - 4xy - 28x - 34y = 44$
   Find coordinates of focuses in the original coordinate system.
2. Determine the type of the surface of degree 2 given by equation
   $-x^2 - y^2 - 3z^2 + 2xy - 4xz - 4yz + 6x - 6y + 4z = 10$
   Find coordinates of the center (if it exists).

Var. 7 (131203) *Nehad*
1. Find a canonical form of a curve of degree 2 given by equation $x^2 - 8y^2 - 12xy + 10x + 28y = 52$
   Find coordinates of focuses in the original coordinate system.
2. Determine the type of the surface of degree 2 given by equation
   $-4x^2 - 3y^2 - z^2 + 2xy - 4xz - 2yz - 4x + 6y + 4z = 1$
   Find coordinates of the center (if it exists).

Var. 8 (131203) *Shamas*
1. Find a canonical form of a curve of degree 2 given by equation $6x^2 - 9y^2 - 8xy - 40x - 20y = 50$
   Find coordinates of focuses in the original coordinate system.
2. Determine the type of the surface of degree 2 given by equation
   $-x^2 - 4y^2 - 4z^2 - 6xy - 4xz - 6yz + 4x + 2y + 2z = 0$
   Find coordinates of the center (if it exists).

Var. 9 (131203) *Umar*
1. Find a canonical form of a curve of degree 2 given by equation $16x^2 - 19y^2 + 12xy - 44x + 26y = 76$
   Find coordinates of focuses in the original coordinate system.
2. Determine the type of the surface of degree 2 given by equation
   $-3x^2 - 3y^2 - 4z^2 + 6xy + 8xz - 8yz + 3x - 2y + 2z = -6$
   Find coordinates of the center (if it exists).

Var. 10 (131203) *Yasir*
1. Find a canonical form of a curve of degree 2 given by equation $10x^2 - 11y^2 + 20xy + 42y = 231$
   Find coordinates of focuses in the original coordinate system.
2. Determine the type of the surface of degree 2 given by equation
   $-3x^2 + y^2 + z^2 + 6xy - 4xz + 8yz + 2x - 6y + 2z = -2$
   Find coordinates of the center (if it exists).

Var. 11 (131203)   *Zunaira*

1. Find a canonical form of a curve of degree 2 given by equation $4x^2 - 3y^2 + 24xy - 16x + 30y = 62$

   Find coordinates of focuses in the original coordinate system.

2. Determine the type of the surface of degree 2 given by equation
   $x^2 + 2y^2 + 2z^2 - 2xy - 2xz + 4yz + x - 2y - 5z = 2$

   Find coordinates of the center (if it exists).

Var. 12 (131203)

1. Find a canonical form of a curve of degree 2 given by equation $7x^2 + 19y^2 + 5xy - 19x - 43y = 983$

   Find coordinates of focuses in the original coordinate system.

2. Determine the type of the surface of degree 2 given by equation
   $4x^2 + y^2 + 4z^2 + 4xy + 2xz + 6yz + 4x + 2y - 4z = -1$

   Find coordinates of the center (if it exists).