N32.6 $Ae = \begin{pmatrix} 0 & 2 & 1 \\ -2 & 2 & 0 \\ -1 & 0 & 3 \end{pmatrix}, \begin{cases} e_1' = e_1 + 2e_2 - e_3 \\ e_2' = e_1 + 2e_2 - e_3 \\ e_3' = -e_1 + e_2 - 3e_3 \end{cases}$ Te se' = $\begin{pmatrix} 1 & 0 & -1 \\ 2 & 1 & 1 \\ -1 & -1 & -3 \end{pmatrix}$ Ae'= Te-se'- Ae - Te-se' = $\begin{cases} \begin{pmatrix} 1 & 2 & -1 \\ 0 & 1 & -1 \\ -1 & 1 & -3 \end{pmatrix} \begin{pmatrix} 0 & 2 & 1 \\ -2 & 2 & 0 \\ -1 & 0 & 3 \end{pmatrix} \begin{pmatrix} 4 & 2 & 1 \\ +2 & 2 & 4 \\ -1 & -3 & -3 \end{pmatrix}$ $= \begin{pmatrix} -3 & 6 & -2 \\ -1 & 2 & -3 \\ 1 & 0 & -10 \end{pmatrix} \begin{pmatrix} 4 & 0 & -1 \\ +2 & 1 & 4 \\ -1 & 0 & -3 \end{pmatrix} = \begin{pmatrix} 11 & 8 & 15 \\ 6 & 5 & 12 \\ 11 & 10 & 29 \\ 9 & 9 & 9 \end{pmatrix}$

a)
$$f(x,y) = 2x_1y_1 - 3x_1y_2 - 4x_1y_3 + 4x_2y_1 - 5x_2y_3 + 2x_2y_1 - 5x_2y_3 + 2x_2y_1 - 5x_2y_3 + 2x_2y_1 - 5x_2y_3 + 2x_2y_2 - 4x_1x_2 - 4x_1x_2 + x_1x_2 + x_1x_2 - 5x_2x_3 + x_3^2$$

$$= 2x_1^2 - 2x_1x_2 - 4x_1x_3 - 5x_2x_3 + x_3^2$$

$$Q = \begin{pmatrix} 2 & -1 & -2 \\ -1 & 0 & -\frac{7}{2} \\ -2 & \frac{7}{2} & 7 \end{pmatrix}$$

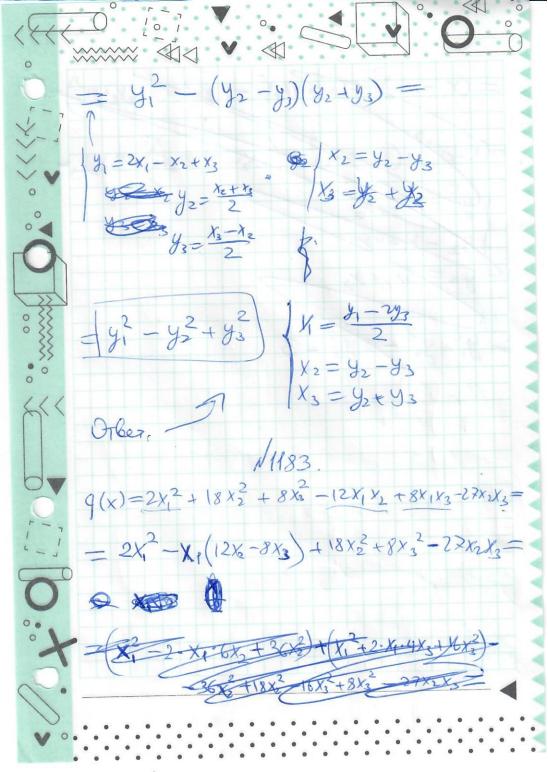
$$\Rightarrow b(x_1y) = 2x_1y_1 - x_1y_2 - 2x_1y_3 - y_1x_2 - \frac{7}{2}x_2y_3 - 2x_3y_1 - \frac{7}{2}x_3y_2 + x_3y_3$$

$$= (2x_1)^2 - 2x_1x_2 + (x_2 + x_3)^2 + 2x_2x_3 - 3x_2x_3 = \frac{7}{2}x_2x_3 - 2x_3y_1 - \frac{7}{2}x_3y_2 + x_3y_3$$

$$= (2x_1^2 + x_2^2 + x_3^2 - 4x_1x_2 + 4x_1x_3 - 3x_2x_3 = \frac{7}{2}x_2x_3 - 2x_3y_1 - \frac{7}{2}x_3y_2 + x_3y_3$$

$$= (2x_1^2 + x_2^2 + x_3^2 - 4x_1x_2 + 4x_1x_3 - 3x_2x_3 = \frac{7}{2}x_2x_3 - 2x_2x_3 - 2x_2x_3 - \frac{7}{2}x_2x_3 - 2x_2x_3 = \frac{7}{2}x_2x_3 - \frac{7}{2}x_3x_3 - \frac{7}{2}x_3$$

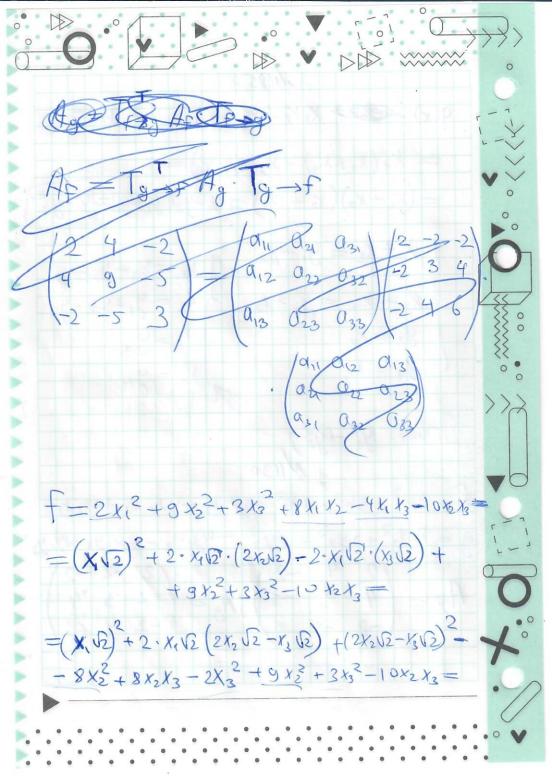
· V



$$(X_{1}\sqrt{2})^{2} - 2 \cdot X_{1}\sqrt{2} \cdot (3X_{2}\sqrt{2} - 2X_{3}\sqrt{2}) + 18X_{2}^{2} + 8X_{3}^{2} - 2 \times X_{2}X_{3} = \frac{(X_{1}\sqrt{2})^{2} - 2 \cdot (X_{1}\sqrt{2})(3X_{2}\sqrt{2} - 2X_{3}\sqrt{2}) + (3X_{2}\sqrt{2} - 2X_{2}\sqrt{2})^{2} - (3X_{2}\sqrt{2} - 2X_{3}\sqrt{2})^{2} + 18X_{2}^{2} + 8X_{3}^{2} - 2 \times X_{2}X_{3} = \frac{(X_{1}\sqrt{2})^{2} - 2X_{3}\sqrt{2}}{2} + 18X_{2}^{2} + 8X_{3}^{2} - 2 \times X_{2}X_{3} = \frac{(X_{1}\sqrt{2})^{2} - 2X_{3}\sqrt{2}}{2} + 2X_{3}\sqrt{2} + 2X_{3}\sqrt{2}$$

· V

$$\begin{cases} (x_1 - y_2 - y_3) \\ (x_2 + x_4) + x_3(x_2 + x_4) = \\ (x_1 + x_3)(x_2 + x_4) = \\ (x_1 + x_2)(x_2 + x_4) = \\ (x_1 + x_3)(x_2 + x_4) = \\ (x_1 + x_2)(x_2 +$$



$$= (x_1\sqrt{2} + 2x_2\sqrt{2} - x_3\sqrt{2})^2 + x_2^2 + x_3^2 - 2x_2x_3 =$$

$$= (x_1\sqrt{2} + 2x_2\sqrt{2} - x_3\sqrt{2})^2 + (x_2 - x_3)^2 =$$

$$= (x_1\sqrt{2} + 2x_2\sqrt{2} - x_3\sqrt{2})^2 + (x_2 - x_3)^2 =$$

$$= q_1^2 + q_2^2$$

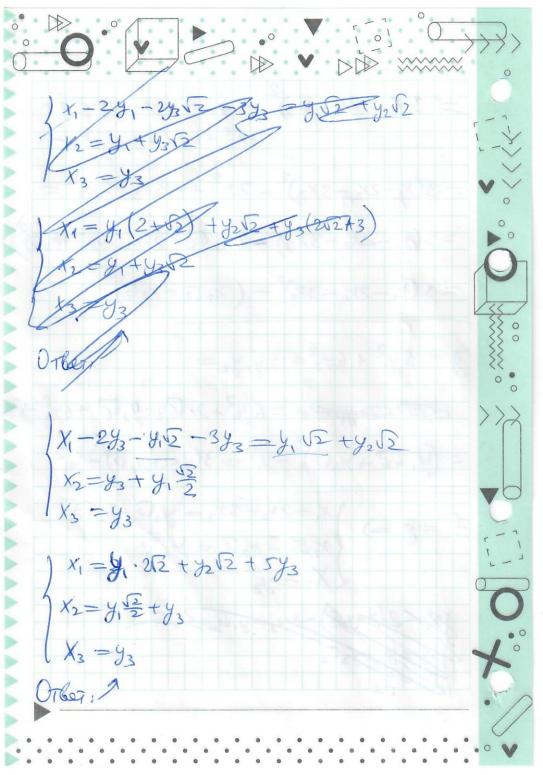
$$= q_1^2 + q_2^2$$

$$= x_2 - x_3$$

$$= x_3$$

$$q_2 = x_2 - x_3$$

$$= (y_1\sqrt{2})^2 - 2 \cdot y_1 \cdot (2y_1 + 2y_3) + 3y_2^2 + 6y_3^2 + 3y_3^2 + 6y_3^2 + 3y_3^$$



1/201 $\frac{1}{1} = x_1^2 - x_2 x_3 = x_1^2 - (x_2 - x_3)(x_1 + x_3) = x_1^2 - x_2^2 + x_3^2$ t2 = y, y2 - y3 = (31 - y2) (y1 + y2) - y3 = y12 - y2 - y3 $f_3 = \frac{2}{2}, 2_2 + 2_3^2 = (2_1 - 8_2^1)(2_1 + 3_2^1) + 2_3^2 = 2_1^2 - 2_2^{12} + 3_2^2$ Custorypur: +, -(2,1) $f_2 - (1, 2)$ $f_3 - (2,1)$ =) fi u fz xcbubcuertus)+,= X12+4/2+X3+4/1/2-24/X3 = = x12+2. x1. 2x2+(2x3) + x3-2x1x3 = (X1+2x2)+x3-2x1x3 $= (\chi_1 + 2\chi_2)^2 + \chi_3^2 - 2\chi_1 \chi_3 + \chi_1^2 - \chi_1^2 =$ $=(x_1+2x_2)^2+(x_3-x_1)^2-x_1^2$ =) curriarypa: (2, 1) D f2 = 412+242-43+44,42-24,43-44243= T = Colygon