SAMPLE 1:

Question 1: Find the features of the conic section $y^2 - 2y + 4x + 5 = 0$, and sketch its graph.

Question 2: Find the equation of the parabola with vertex $(2, 1)$ and focus $F(2, 3)$. Then, sketch the graph.

Question 3: If $A = \begin{bmatrix} 1 & 6 & 1 \\ -2 & 4 & 3 \end{bmatrix}$, $B = \begin{bmatrix} 2 & 3 & -1 \\ 0 & 8 & 5 \end{bmatrix}$ and $C = \begin{bmatrix} 3 & 9 \\ -1 & 5 \end{bmatrix}$, then find (1) $-2A + 3B$ (2) CB

SAMPLE 2:

Question 1: Find the features of the conic section $4x^2 + 2y^2 - 8x - 8y - 20 = 0$, and sketch its graph.

Question 2: Find the equation of the ellipse with Foci $(10, -2)$, $(4, -2)$ and one of its vertices $(12, -2)$. Then, sketch the graph.

Question 3: If $A = \begin{bmatrix} 1 & 6 & 1 \\ -2 & 4 & 3 \end{bmatrix}$, $B = \begin{bmatrix} 2 & 3 & -1 \\ 0 & 8 & 5 \end{bmatrix}$ and $C = \begin{bmatrix} 3 & 9 \\ -1 & 5 \end{bmatrix}$, then find (1) $-2A + 3B$ (2) $A^t C$

SAMPLE 3:

Question 1: Find the features of the conic section $y^2 - 2x^2 - 2y - 4x = 17$, and sketch its graph.

Question 2: Find the equation of the hyperbola with foci at $(-2, 2)$, $(6, 2)$ and one of its vertices is $(5, 2)$, then sketch its graph.

Question 3: If $A = \begin{bmatrix} 1 & 6 & 1 \\ -2 & 4 & 3 \end{bmatrix}$, $B = \begin{bmatrix} 2 & 3 & -1 \\ 0 & 8 & 5 \end{bmatrix}$ and $C = \begin{bmatrix} 3 & 9 \\ -1 & 5 \end{bmatrix}$, then find (1) $-2A + 3B$ (2) $A^t C$