

PROBLEM SET 4

CONIC SECTIONS

SET A

NAME: _____

SECTION: _____

STUDENT ID: _____

DATE SUBMITTED: _____

NOTE: Print out this document and write your answers on the spaces provided. Indicate solutions if necessary. **Avoid erasures.**

Part One. All of the equations listed below are general equations of conic sections. Study each equation, transform it into standard form and decide what type of conic section it is. (5 points each).

1. $x^2 - 5y^2 + 26x + 164 = 0$

4. $x^2 + y^2 + 14x + 10y + 59 = 0$

2. $x^2 + y^2 - 24x - 16y + 188 = 0$

5. $4x^2 + 4x - 32y - 191 = 0$

3. $8x^2 + 3y^2 - 176x - 42y + 1091 = 0$

6. $y^2 - 6x - 10y + 21 = 0$

7. $9x^2 + 10y^2 + 72x + 80y + 214 = 0$

8. $8x^2 - 2y^2 - 160x + 32y + 688 = 0$

Part Two. For all the hyperbolas you have identified from Part One, write the complete the table below by writing the equation of each hyperbola and identifying the features of its graphs (10 points per hyperbola correctly identified).

| | Equation (Standard Form) | Center | Vertices | Length of transverse axis, $2a$ | Length of conjugate axis, $2b$ | Foci | Asymptotes |
|---|-----------------------------|--------|----------|---------------------------------------|--------------------------------------|------|------------|
| 1 | | | | | | | |
| 2 | | | | | | | |
| 3 | | | | | | | |