

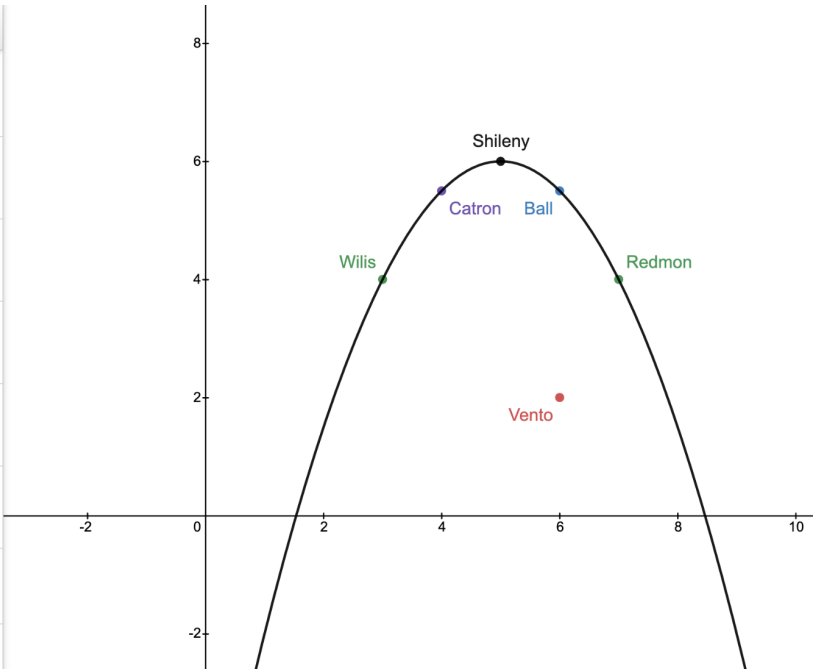
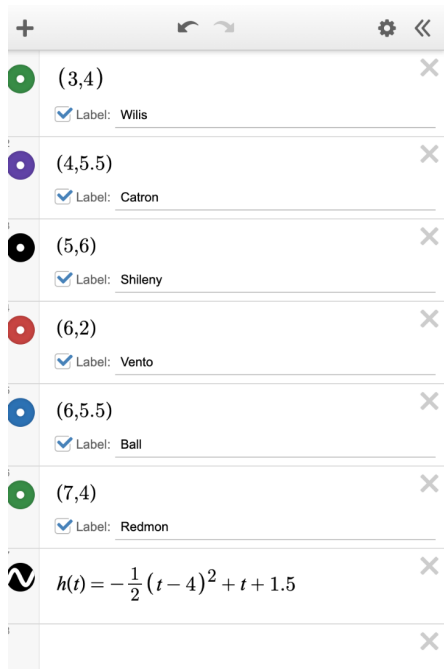
Conic Crime Solvers Solutions

<Clue 1 Solution - Stella Lee>

General form: $-\frac{1}{2}t^2 + 5t - 6.5$

Standard form:

$$h(t) = -\frac{1}{2}(t - 4)^2 + t + 1.5$$



Willis	✓
Catron	✓
Shileny	✓
Vento	
Ball	✓
Redmon	✓

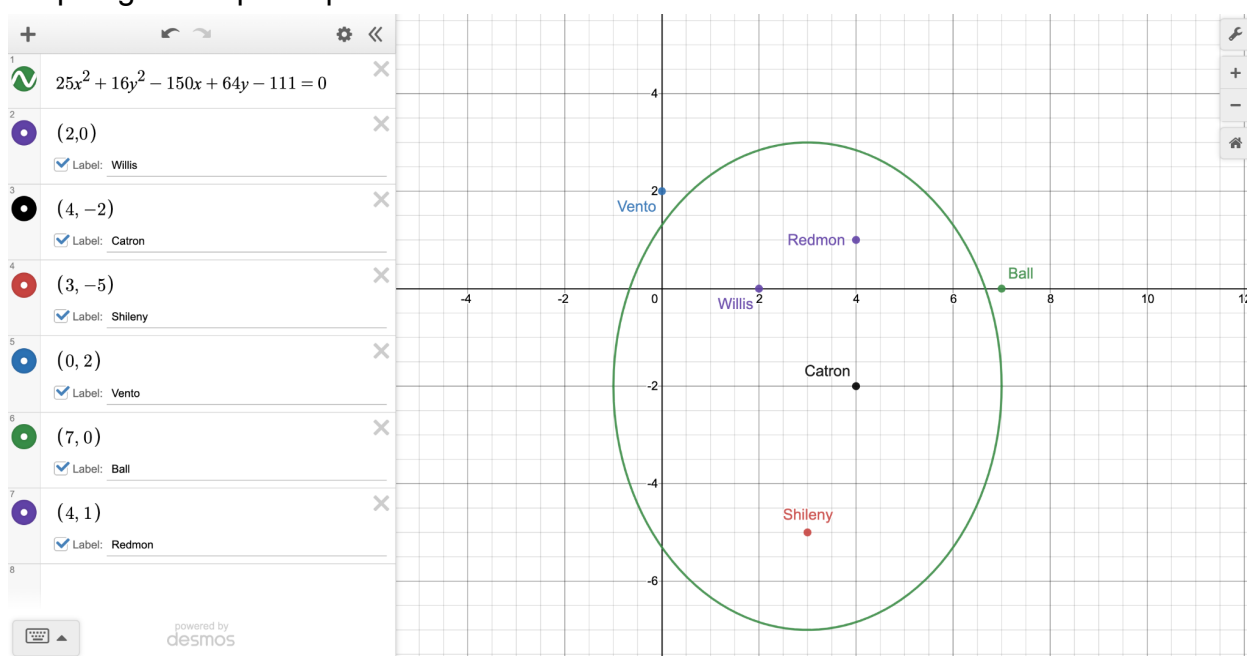
<Clue 2 Solution - Jake Choi>

$$25x^2 + 16y^2 - 150x + 64y - 111 = 0 \text{ (General Form)}$$

Changed to Standard Form:

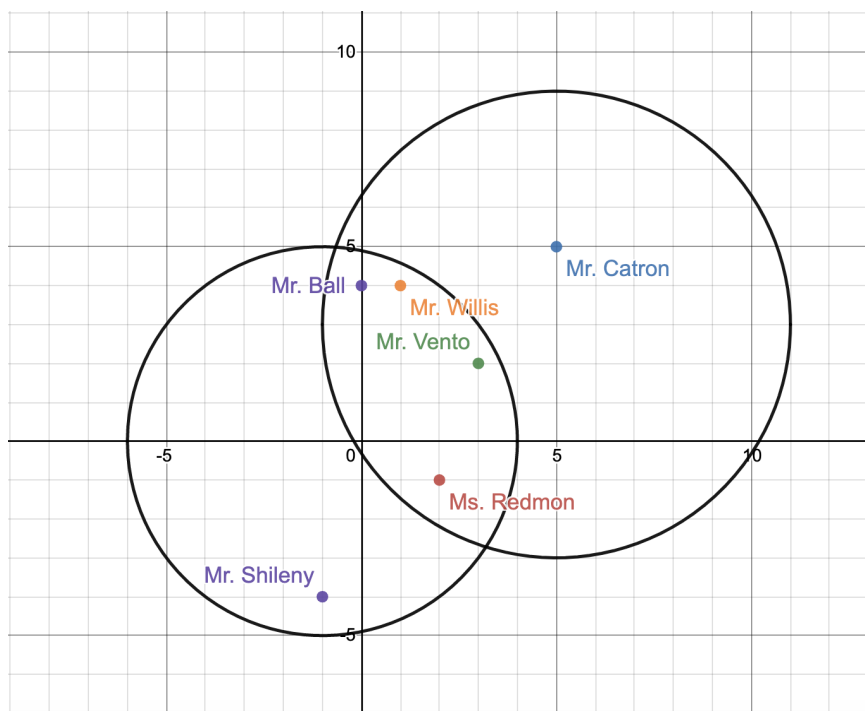
$$\frac{(x - 3)^2}{16} + \frac{(y + 2)^2}{25} = 1$$

Graphing the ellipse equation:



Willis	✓
Catron	✓
Shileny	✓
Vento	
Ball	
Redmon	✓

<Clue 3 Solution - Sera Yu>



Mr. Willis	$(1 + 1)^2 + (4 - 0)^2 < 25$ $(1 - 5)^2 + (4 - 3)^2 < 36$
Mr. Vento	$(3 + 1)^2 + (2 - 0)^2 < 25$ $(3 - 5)^2 + (2 - 3)^2 < 36$
Mr. Ball	$(0 + 1)^2 + (4 - 0)^2 < 25$ $(0 - 5)^2 + (4 - 3)^2 < 36$
Mr. Shileny	$(-1 + 1)^2 + (-4 - 0)^2 < 25$ $(-1 - 5)^2 + (-4 - 3)^2 > 36$
Mr. Catron	$(5 + 1)^2 + (5 - 0)^2 > 25$ $(5 - 5)^2 + (5 - 3)^2 < 36$
Ms. Redmon	$(2 + 1)^2 + (-1 - 0)^2 < 25$ $(2 - 5)^2 + (-1 - 3)^2 < 36$

Answer: Mr. Catron was only inside the range of Norimae and Mr. Shileny was only inside the range of KISJ middle school. All suspects except Mr. Catron and Mr. Shileny was inside KISJ high school!

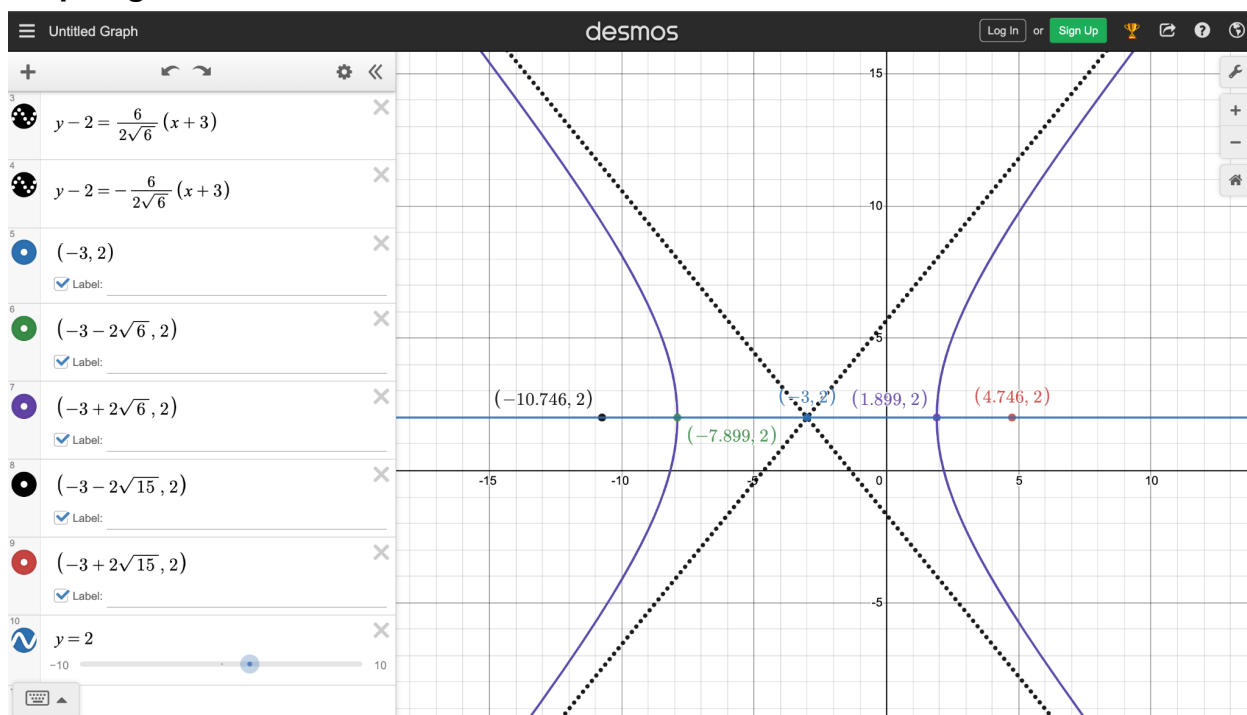
<Clue 4 Solution> - Jeehwan Shin

- Change to standard form:

$$\frac{(x + 3)^2}{24} - \frac{(y - 2)^2}{36} = 1$$

→ center: $(-3, 2)$ vertices: $(-3 - 2\sqrt{6}, 2)$, $(-3 + 2\sqrt{6}, 2)$ Foci: $(-3 - 2\sqrt{15}, 2)$, $(-3 + 2\sqrt{15}, 2)$, axis of symmetry: $y=2$

Graphing:



Willis	
Catron	
Shileny	
Vento	
Ball	
Redmon	✓

