

How the teacher builds these questions.

This is the standard 7.2 question I'd like to ask:

Write $64x^2 + 49y^2 - 896x + 1274y + 11417 = 3136$ in standard form, and indicate the endpoints of the major and minor axes and the foci in a graph.

$$\frac{(x-7)^2}{49} + \frac{(y+13)^2}{64} = 1$$

$$\frac{(x-7)^2}{49} + \frac{(y+13)^2}{64} = 1 \quad (1)$$

%·49·64

$$64(x-7)^2 + 49(y+13)^2 = 3136 \quad (2)$$

expand(%)

$$64x^2 + 49y^2 - 896x + 1274y + 11417 = 3136 \quad (3)$$

Teacher builds a parabola:

expand(2·(x-5)²-11)

$$2x^2 - 20x + 39 \quad (4)$$

Standard 7.1 question:

Write $2x^2 - 20x + 39$ in standard form, and indicate the focus, vertex and directrix in its graph.