

Answer on Question #57358 – Math – Analytic Geometry

Question

What are the coordinates of the focus of the conic section shown below?

$$y^2 + 16y - 4x + 4 = 0$$

Solution

$$y^2 + 16y - 4x + 4 = 0;$$

$$y^2 + 16y + 64 - 64 - 4x + 4 = 0;$$

$$(y + 8)^2 = 60 + 4x;$$

$$(y + 8)^2 = 4(x + 15);$$

The vertex of the parabola has coordinates $(-15, -8)$.

As $p = 1$, it follows that the coordinates of the focus are $(-15 + 1, -8) = (-14, -8)$.

Answer: $(-14, -8)$.