8. $9x^2 - y^2 - 72x - 4y + 131 = 0$

x's: $(-8 \cdot \frac{1}{2})^2$, $(-4)^2$, 16

y's: $(4 \cdot \frac{1}{2})^2$, $(2)^2$, 4

① $9x^2 - 72x - y^2 - 4y = -131$

② $9(x^2 - 8x) - 1(y^2 + 4y) = -131$

③ $9(x^2 - 8x + 16 - 16) - 1(y^2 + 4y + 4 - 4) = -131$

$9(x^2 - 8x + 16) + 9(-16) - 1(y^2 + 4y + 4) - 1(-4) = -131$

$9(x-4)^2 - 144 - (y+2)^2 + 4 = -131$

$9(x-4)^2 - (y+2)^2 = -131 + 144 - 4$

$9(x-4)^2 - (y+2)^2 = 9$

④ $\frac{9(x-4)^2}{9} - \frac{(y+2)^2}{9} = \frac{9}{9}$

$\frac{(x-4)^2}{1} - \frac{(y+2)^2}{9} = 1$

$h = 4$, $k = -2$

$\frac{(x-4)^2}{(1)^2} - \frac{(y+2)^2}{(3)^2} = 1$

$a = 1$, $b = 3$

LEFT

$b^2 = c^2 - a^2$

$3^2 = c^2 - 1^2$

$9 = c^2 - 1$

$9 + 1 = c^2$

$10 = c^2$

$c = \sqrt{10}$