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$$x^2 + 4x + 6y - 2 = 0$$

We need to convert this to $(x-h)^2 = 4p(y-k)$ by completing the square.

$$x^2 + 4x + 4 = -6y + 2 + 4$$

$$(x+2)(x+2) = -6y + 6$$

$$(x+2)^2 = -6(y-1)$$

← factor out the coef. of the y-term.

$$\frac{4}{2} = 2$$

$$2^2 = 4$$

vertex $(-2, 1)$

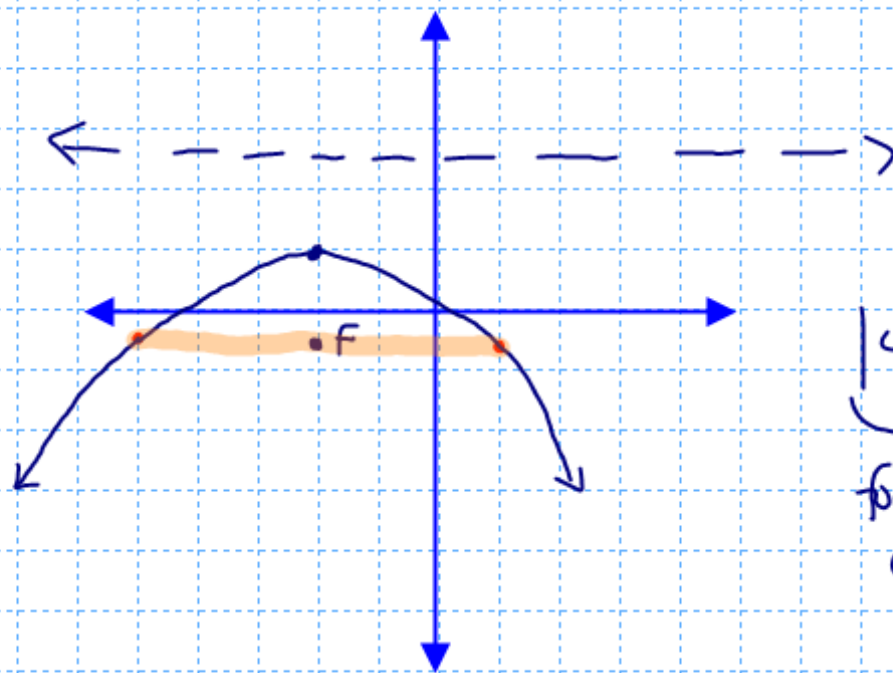
$$4p = -6$$

$$p = \frac{-6}{4}$$

$$p = -\frac{3}{2}$$

focus $(-2, -\frac{1}{2})$

Directrix: $y = 2\frac{1}{2}$



$$|4p| = |-6| = 6$$

focal diameter

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$$x^2 - 2x + 8y + 9 = 0$$

$$x^2 - 2x + 1 = -8y - 9 + 1$$

$$(x-1)^2 = -8y - 8$$

$$(x-1)^2 = -8(y+1)$$

$$\frac{-2}{2} = -1$$

$$(-1)^2 = 1$$

vertex: $(1, -1)$

$$4p = -8$$

$$p = -2$$

focus: $(1, -3)$ Directrix: $y = 1$ 