Show your work and circle your final answer.

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1. Find the maximum of
$$f(x, y) = x^2 - xy + y^2 + 4$$

on the rectangle
$$-1 \le x \le 1, \qquad -1 \le y \le 1$$

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2. Find the extreme values of
$$f(x, y) = 2x - 3y$$

subject to the constraint
$$x^2 + 4y^2 = 4$$