With reasons, match the functions f with their gradient vector fields labeled I-IV. Give reasons for your choice.

a. $f(x, y) = x^2 + y^2$

b. $f(x, y) = x(x + y)$

c. $f(x, y) = (x + y)^2$

d. $f(x, y) = \sin \sqrt{x^2 + y^2}$

I

II

III

IV