SECOND PARTIALS

For each of the functions below, find z_{xx}, z_{xy}, z_{yx}, and z_{yy}.

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

2. $z = f(x, y) = x^2 - y^2$

3. $z = f(x, y) = \sqrt{xy}$

4. $z = f(x, y) = \ln(xy)$

5. $z = f(x, y) = x^3 - 6x + y^3 - 9y$

6. $z = f(x, y) = e^{5xy^2}$

7. $z = f(x, y) = x^3 y^2 + y^5$

8. $z = f(x, y) = \dfrac{1}{x^2 + y^2}$