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

Find the directional derivatives of f at X_0 in the specified directions. Note that you will need to make the direction vectors into unit vectors.

1. $X_0 = (2, 1)$ in the direction of:

$$(3, 4) \qquad (-1, 1) \qquad (2, -1) \qquad (-2, 1)$$

2. $X_0 = (-3, -2)$ in the direction of:

$$(1, 0) \qquad (3, 2) \qquad (-3, 2) \qquad (3, -2)$$