

# Partial Derivatives.

Spring 2016

Attendance Quizzes

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# Quiz 12 Partial Derivatives.

- 1 Consider the function:

$$z = \frac{2x - y}{x^2 + y^2}$$

Suppose you write  $D(z) = AD(x) + BD(y)$ . Calculate  $A, B$ . You **must simplify** by writing each answer as a single fraction with collected terms.

**Answer:**

$$A = \frac{2}{x^2 + y^2} - \frac{(2x - y)(2x)}{(x^2 + y^2)^2}, B = \frac{-1}{x^2 + y^2} - \frac{(2x - y)(2y)}{(x^2 + y^2)^2}.$$

When simplified, you get

$$A = \frac{-2x^2 + y^2 + 2xy}{(x^2 + y^2)^2}, B = \frac{-x^2 + y^2 - 4xy}{(x^2 + y^2)^2}.$$