PARTIAL DERIVATIVE OF f WITH RESPECT TO X:

PARTIAL DERIVATIVE OF f WITH RESPECT TO Y:

LET $f(x,y) = 4x^2 - 9xy + 6y^3$.

FIND f_x.   FIND f_y.

$$f(x,y) = e^x + e^{y^3} + e^{5x} + e^{xy}$$

FIND f_x.

FIND f_y.

$$f(x,y) = 8ye^{2x+3y}$$

FIND f_x.

FIND f_y.

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

FIND f_x.

FIND f_y.

$f(x,y) = 2x^2 + 3xy^3 + 2y + 5$

FIND $f_x(-1,2)$.

FIND $\frac{\partial f}{\partial y}(-4,-3)$.

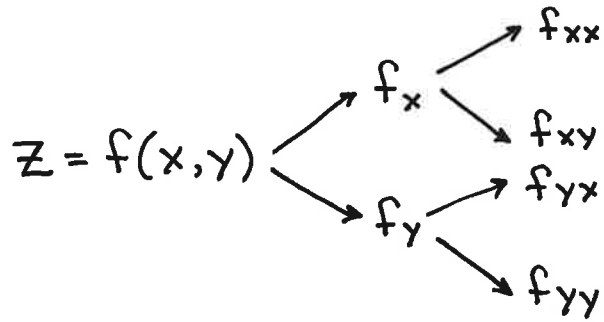A COST FUNCTION TO BUY ITEMS X AND Y BY THE HUNDRED IS GIVEN BY

$$C(x,y) = 500 + 700x + 1800y - 2x^2 - 3y^2 - xy$$

WHICH INCLUDES THE PLACE TO SELL THE ITEMS.

- WHAT DOES THE 500 REPRESENT?

- FIND AND EXPLAIN $C_x(20, 15)$.   • FIND AND EXPLAIN $C_y(20, 15)$.

SECOND-ORDER PARTIAL DERIVATIVES

$$Z = f(x, y)
\begin{cases}
f_x \begin{cases} f_{xx} \\ f_{xy} \end{cases} \\
f_y \begin{cases} f_{yx} \\ f_{yy} \end{cases}
\end{cases}$$

$$f(x, y) = -4x^3 - 3x^2y^3 + 2y^2$$

FIND THE FOLLOWING.

f_{xx} f_{yy} f_{xy} f_{yx}

$$f(x,y,z) = xy^2z + 2x^2y - 4xz^2$$

FIND THE FOLLOWING.

f_x $\qquad\qquad\qquad\qquad$ f_y $\qquad\qquad\qquad\qquad$ f_z

f_{xy} $\qquad\qquad\qquad\qquad$ f_{yz}