Talk with the people around you for a minute

At the point marked, f_x will be

(a) Positive

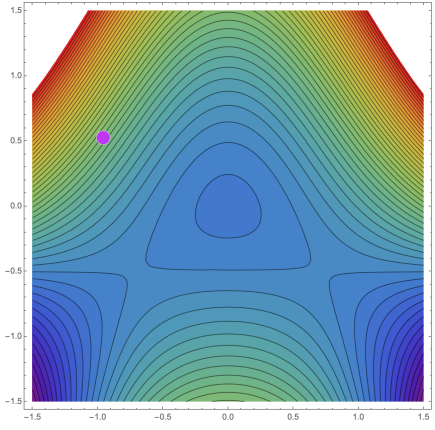
(b) Negative

(c) 0

(d) Undefined

(e) Urrr

Contourplot of $f(x, y)$



Coloring is [blue, red]

Talk with the people around you for a minute

At the point marked, f_y will be

(a) Positive

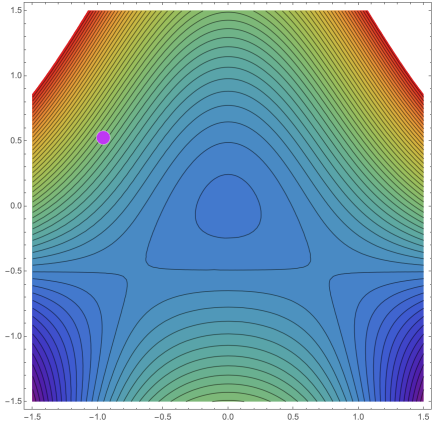
(b) Negative

(c) 0

(d) Undefined

(e) Urrr

Contourplot of $f(x, y)$



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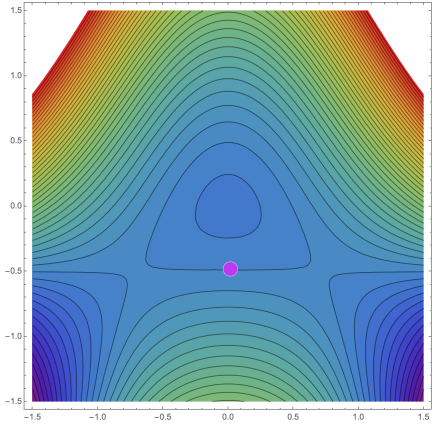
Contourplot of $f(x, y)$



Coloring is [blue, red]

Talk with the people around you for a minute

At the point marked, f_y will be

(a) Positive

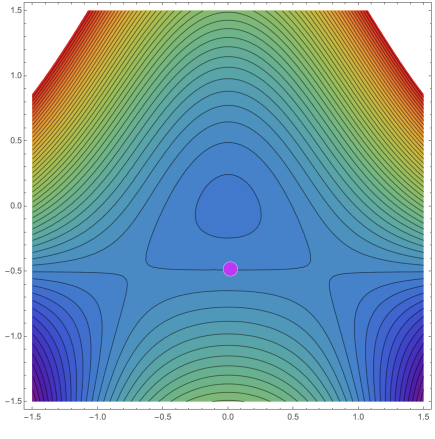
(b) Negative

(c) 0

(d) Undefined

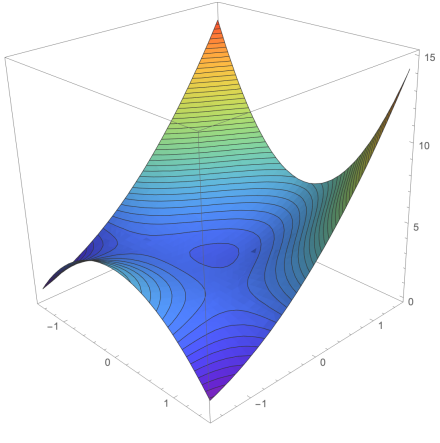
(e) Urrr

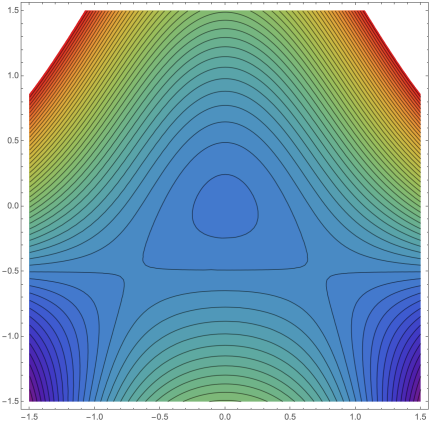
Contourplot of $f(x, y)$



Coloring is [blue, red]

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





1. Let $f(x, y) = \cos(x + y) + \sin(y)$

1. Find the first order partial derivatives f_x, f_y
2. Find the second order partial derivatives f_{xx}, f_{xy}, f_{yx}, and f_{yy}
3. Evaluate f_x, f_y, f_{xx} and f_{yy} the point $(0, 0.5)$.
4. What does your answer to 3 tell you about the graph $z = f(x, y)$ at $(0, 0.5)$?
5. Use a contour plot and/or 3D plot to verify your answers to #3 and #4.

2. Let $g(x, y) = x^2 + 2xy + 2y - 1$

1. Find the first order partial derivatives g_x, g_y
2. Find the second order partial derivatives g_{xx}, g_{xy}, g_{yx}, and g_{yy}
3. Evaluate g_x, g_y, g_{xx} and g_{yy} the point $(2, -4)$.
4. What does your answer to 3 tell you about the graph $z = g(x, y)$ at $(2, -4)$?
5. Use a contour plot and/or 3D plot to verify your answers to #3 and #4.