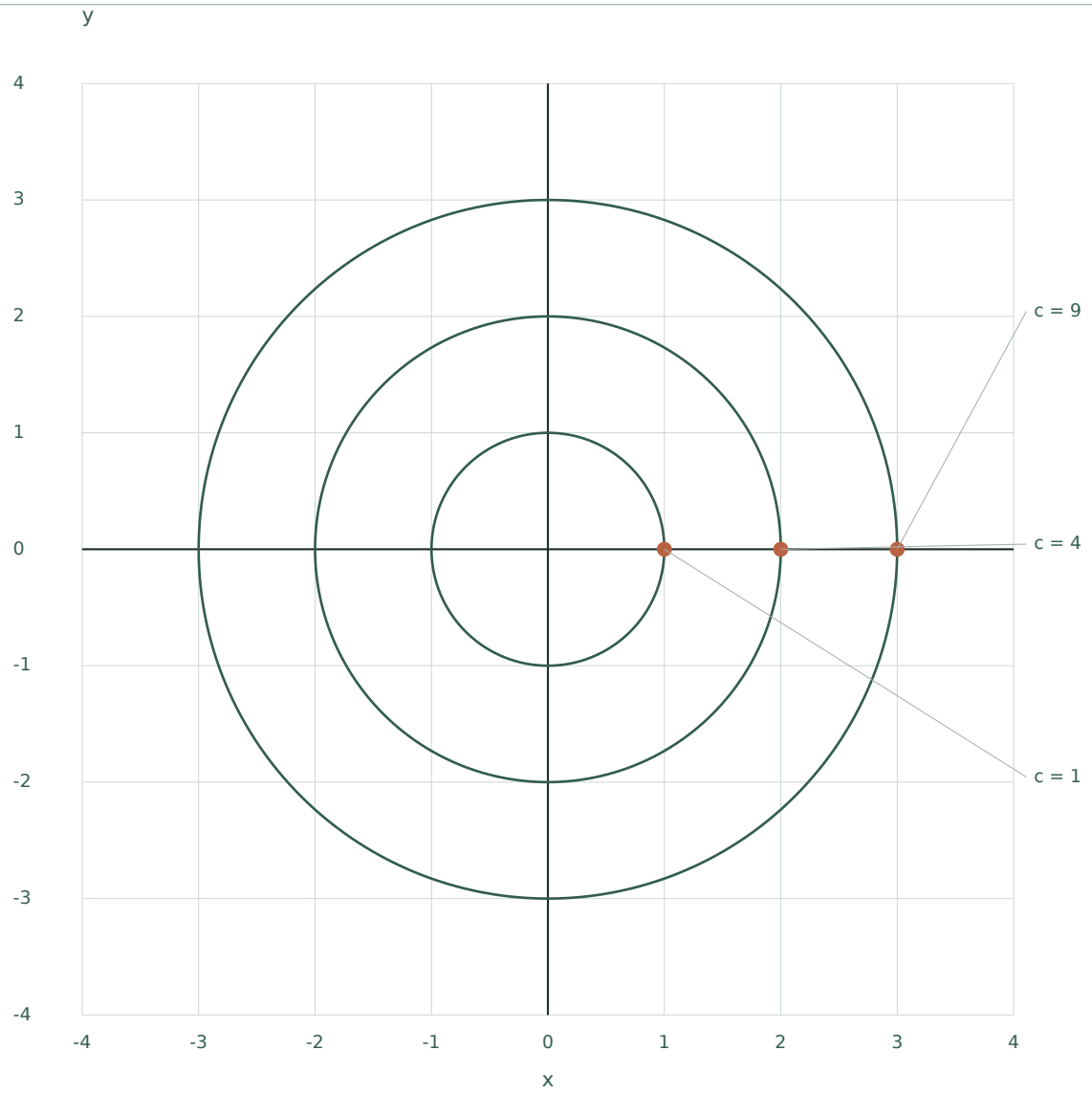
How to Draw Contour Lines of a Multivariable Function

Worked graph



Each label identifies the contour through its marked point. Coordinate labels sit outside the plot; thin grey leaders are annotations, not function curves.

How to Draw Contour Lines of a Multivariable Function

Original worked example / unchanged complete key

Prompt: Draw contour lines for f(x,y)=x^2+y^2 at c=1,4,9 on a grid from -4 to 4 in both axes. Label each contour.

Answer: The levels are circles centered at the origin with radii 1,2,3. Plot points: for c=1, (1,0),(0,1),(-1,0),(0,-1); for c=4, (2,0),(0,2),(-2,0),(0,-2); for c=9, (3,0),(0,3),(-3,0),(0,-3). Connect each set smoothly into a circle. Label the circles c=1, c=4, c=9. Use solid lines for all positive levels and state that convention.