Section 29.1 : Functions of Two Variables

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up until now, we've been looking at functions of one variable only

what about two variables?

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

$$f(r, \theta) = r \sin \theta$$

in fact, you've been using these for quite some time in non-calculus based applications

$$V = \pi r^2 h$$

where the volume of the cylinder is a function of both r and h

example:

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

$$f(2, 3) = (2)^2 + (3)^2 = 13$$

if $f(x, y) = \frac{x}{y}$, evaluate at $(5, -4)$

$$f(5, -4) = \frac{5}{-4} = -\frac{5}{4}$$

note: for $f(x,y) = \frac{x}{y}$, cannot have $y = 0$