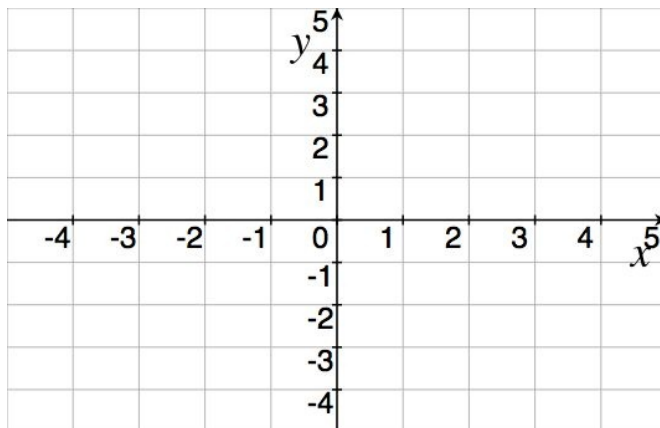


Quiz 5

This is a two-stage quiz. During the first stage, use your knowledge & calculator. You have 15 min. In the second stage, you are now welcome to use your books, notes, and students in the class to retake the same quiz. You have the remainder of the quiz time to write one solution (with everyones name on it!!!) to be turned in for the group.

1. [3] Create a function $f(x, y) = z$, with contour lines/level curves that satisfy *all* of the following

- (a) $f(1, 3) = 4$
- (b) $f(0, 0) = -1$
- (c) $f_x(1, 3) > 0$



2. A model for the surface area of a human body is given by the function:

$$S(w, h) = 0.109w^{0.425}h^{0.725},$$

where w is the weight (in pounds), h is the height (in inches), and S is measured in square feet.

- (a) [2] Find $S(200, 72)$ and interpret it.
- (b) [2] Determine the set of points for which $S(w, h)$ is continuous/provide the domain for S . Briefly justify your answer.
- (c) [3] Find $S_w(200, 72)$ and interpret its meaning.