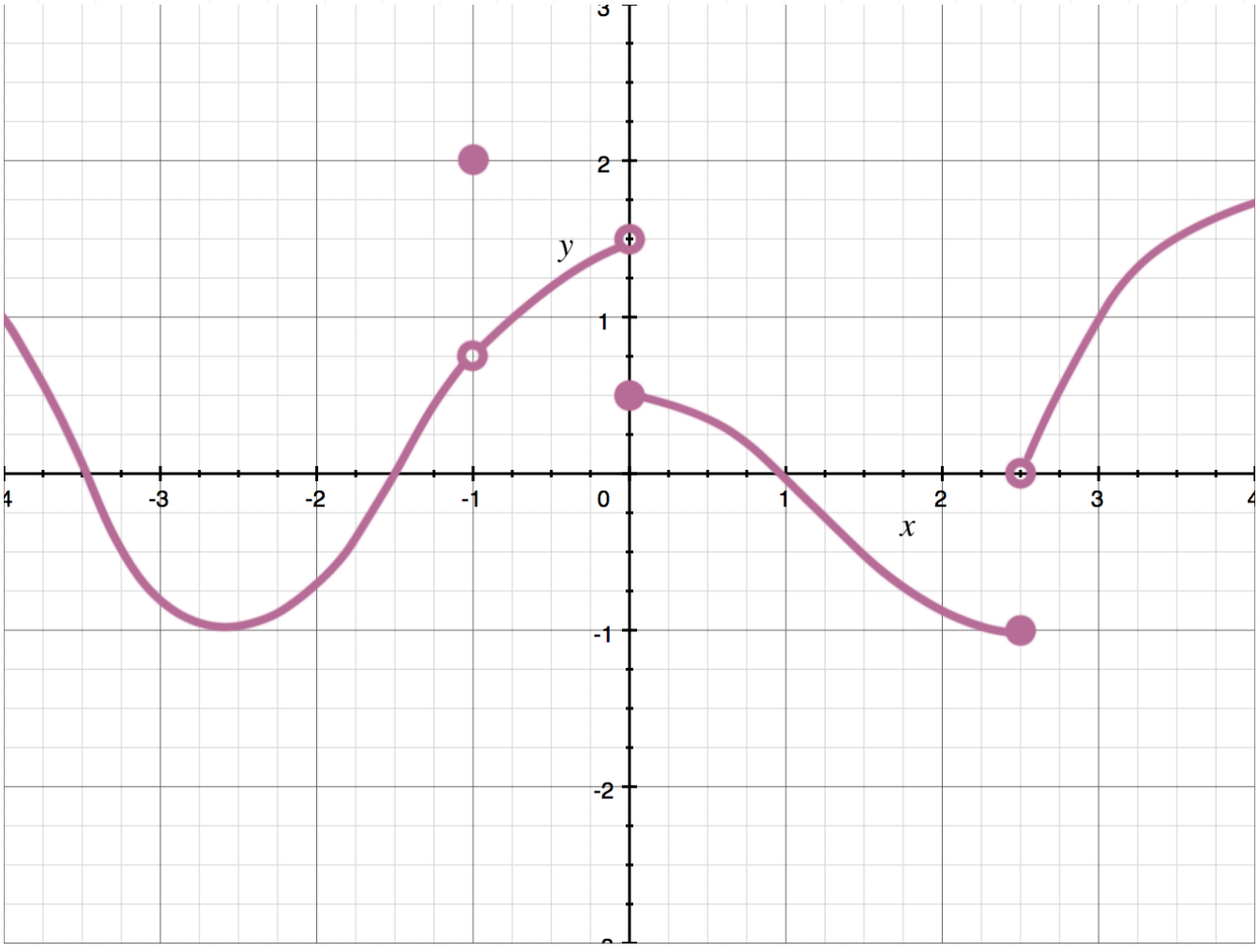
Crazy graphs

"Crazy graphs" is a fabricated topic of math textbooks and professors. They're graphs like this one:



This kind of graph would almost never exist in real life. So, almost certainly, this graph is totally made up.

The only reason we make up these kinds of "weird" or "crazy" graphs, is so that we have a graph that illustrates lots of different limit laws, all in one place. For instance, for the graph above, there are lots of things we can say:

1. There's a point discontinuity at $x = -1$.
2. There are jump discontinuities at $x = 0$ and at $x = 5/2$.

3. The limits at $x = -1$ are

$$\lim_{x \to -1^-} f(x) = 3/4$$

$$\lim_{x \to -1^+} f(x) = 3/4$$

$$\lim_{x \to -1} f(x) = 3/4$$

4. The limits at $x = 0$ are

$$\lim_{x \to -0^-} f(x) = 3/2$$

$$\lim_{x \to -0^+} f(x) = 1/2$$

$$\lim_{x \to 0} f(x) = \text{DNE}$$

5. The limits at $x = 5/2$ are

$$\lim_{x \to 5/2^-} f(x) = -1$$

$$\lim_{x \to 5/2^+} f(x) = 0$$

$$\lim_{x \to 5/2} f(x) = \text{DNE}$$

In other words, graphs like these, even though we're creating a totally unrealistic function, give us lots of easy practice with discontinuity and limit problems, and that's why we use them.