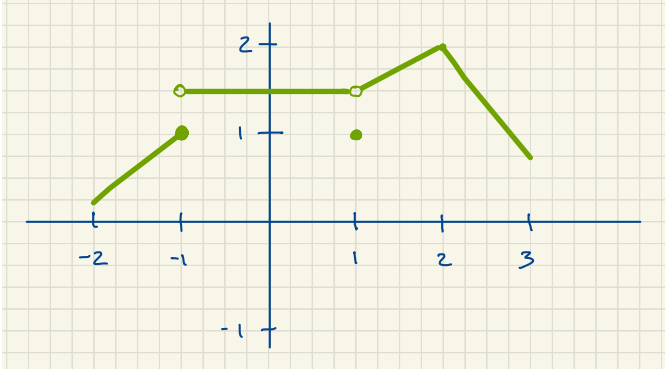
Use the graph of $y = f(x)$ shown below to find the following

1. $\lim_{x \to 1} f(x)$
2. $f(1)$
3. $f(-1)$
4. $\lim_{x \to -1^-} f(x)$
5. $\lim_{x \to -1^+} f(x)$
6. $\lim_{x \to -1} f(x)$



Graph of $y = f(x)$

Talk with the people around you for a minute

Let $f(x) = x^2 + x$. Then $\lim_{h \to 0} \frac{f(2+h) - f(2)}{h} =$

(a) 1

(b) 5

(c) Does not exist

(d) 0

(e) -3

Work on these with your partner(s) at the board

Let $f(x) = x^2 + x + 1$

1. Evaluate $\lim_{h \to 0} \dfrac{f(1+h) - f(1)}{h}$

2. Let m denote your answer to 1.
   Find the equation of the line through the point $(1, f(1))$ with slope m.

   Recall that the point-slope equation for the line through a point (x_0, y_0) with slope m is $y - y_0 = m(x - x_0)$.

3. Graph $y = f(x)$ and your line from part (b) on the same set of axes.
   How are the graphs related?