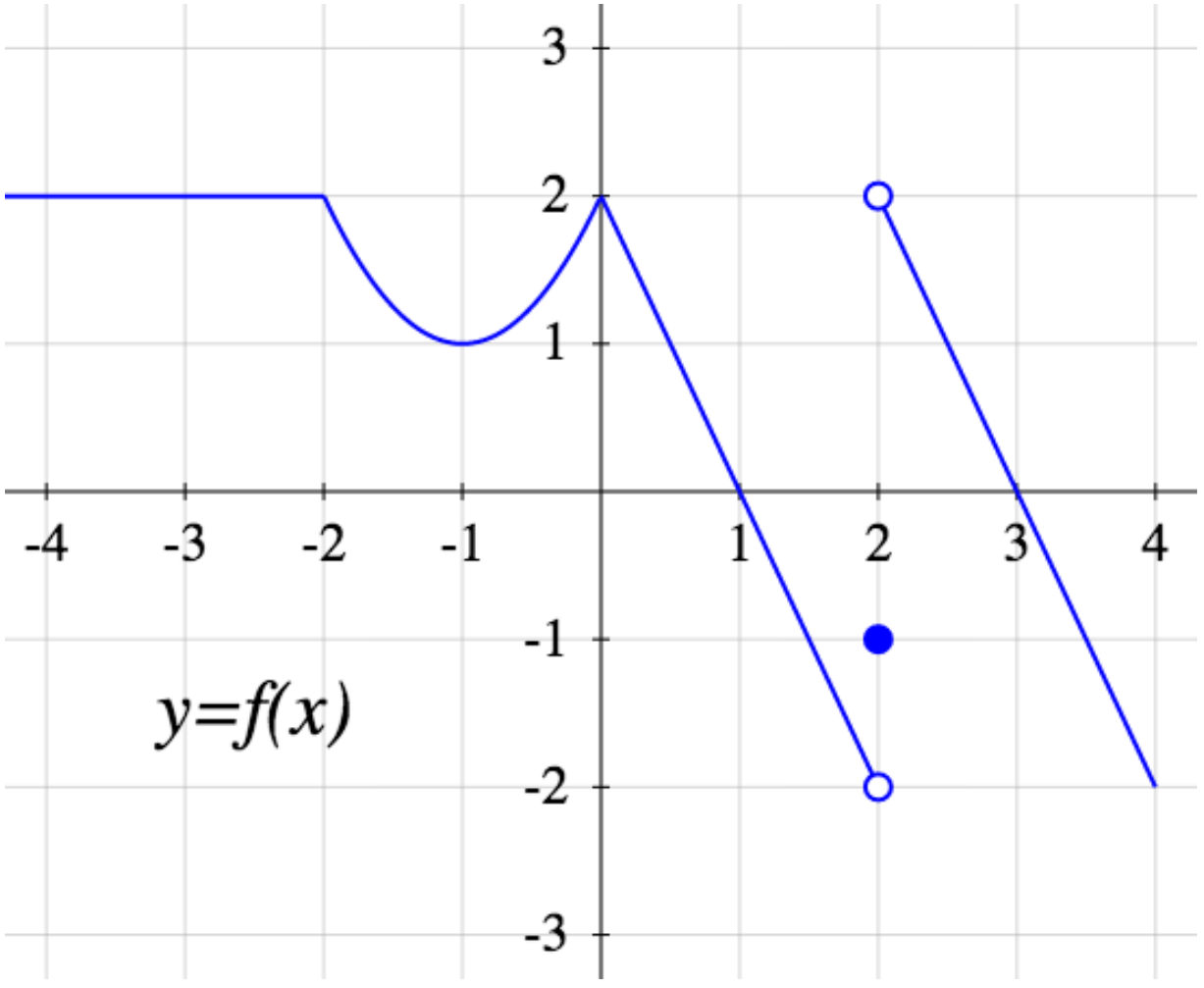
MAT137 - Calculus with proofs

- Assignment #1 due on THURSDAY.
- TODAY: Limits geometrically
- WED: The definition of limit **(Videos 2.5, 2.6)**

Limits from a graph



Find the value of

1. $\lim_{x \to 2} f(x)$
2. $\lim_{x \to 0} f(f(x))$

Floor

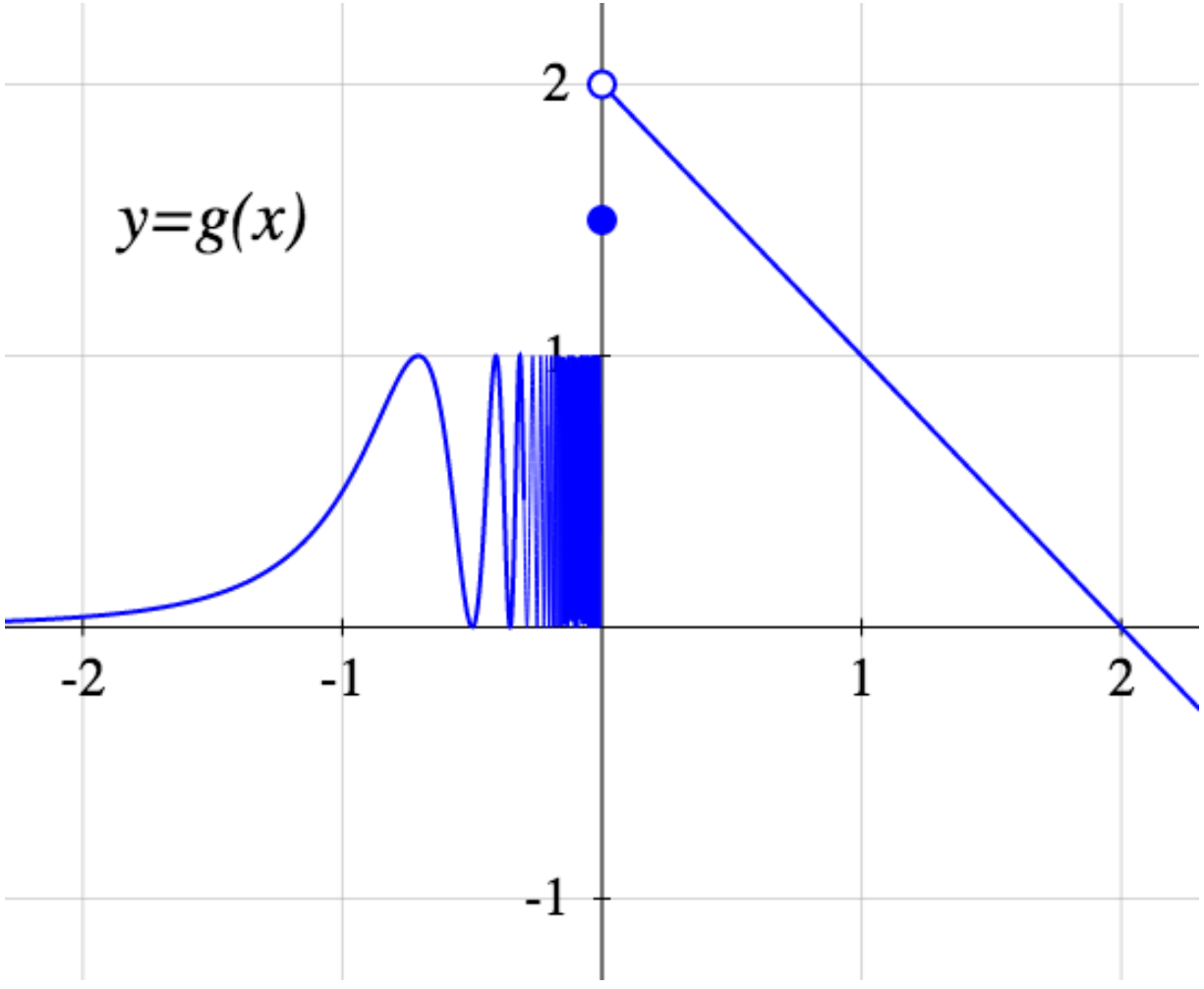
Given a real number x, we defined the *floor of* x, denoted by $\lfloor x \rfloor$, as the largest integer smaller than or equal to x. For example:

$$\lfloor \pi \rfloor = 3, \qquad \lfloor 7 \rfloor = 7, \qquad \lfloor -0.5 \rfloor = -1.$$

Sketch the graph of $y = \lfloor x \rfloor$. Then compute:

1. $\lim_{x \to 0^+} \lfloor x \rfloor$
2. $\lim_{x \to 0^-} \lfloor x \rfloor$
3. $\lim_{x \to 0} \lfloor x \rfloor$
4. $\lim_{x \to 0} \lfloor x^2 \rfloor$

More limits from a graph



Find the value of

1. $\lim_{x \to 0^+} g(x)$
2. $\lim_{x \to 0^+} \lfloor g(x) \rfloor$
3. $\lim_{x \to 0^+} g(\lfloor x \rfloor)$
4. $\lim_{x \to 0^-} g(x)$
5. $\lim_{x \to 0^-} \lfloor g(x) \rfloor$
6. $\lim_{x \to 0^-} \lfloor \frac{g(x)}{2} \rfloor$
7. $\lim_{x \to 0^-} g(\lfloor x \rfloor)$