Math 1300
Fall 2025
Week 1 Quiz

Name: Champ

1. (2 points) Consider a function f that has values given in the following table:

x	1.5	1.9	1.99	1.999	1.9999
$f(x)$	2.2500	3.6100	3.9601	3.9960	3.9996

From the above information, what can you conclude about $f(x)$ at $x = 2$?

(a) $f(x)$ is undefined at $x = 2$.

(b) $f(x)$ approaches 4 as x approaches 2 from the left.

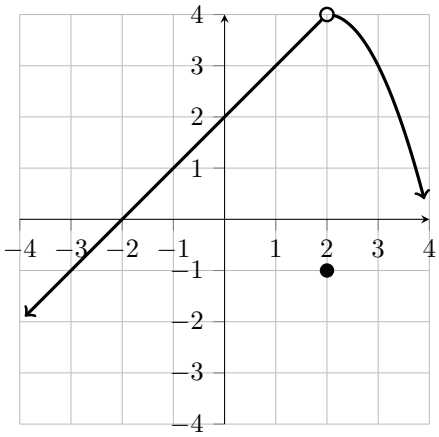
(c) $f(x)$ approaches 4 as x approaches 2 from the right.

(d) $f(2) = 4$.

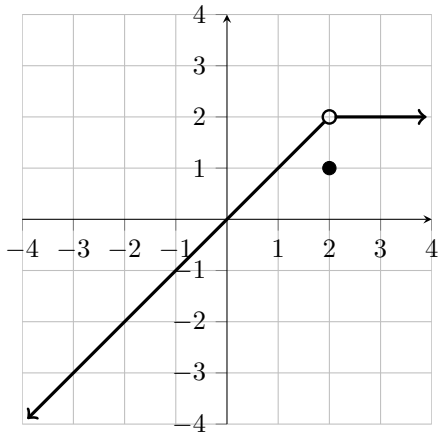
(e) $f(x)$ approaches 4 as x approaches 2 from both sides.

The values in the table are all to the left of $x = 2$.

2. (2 points) Use the graphs of $f(x)$ and $g(x)$ to calculate the limit.



$f(x)$



$g(x)$

$\lim_{x \to 2} \big(f(x) \cdot g(x)\big) =$

(a) 8

(b) 4

(c) -1

(d) -8

(e) The limit does not exist

① Note: $\lim_{x \to 2} f(x) = 4$ and $\lim_{x \to 2} g(x) = 2$

② Since both exist,

$$\lim_{x \to 2} (f(x) \cdot g(x)) = \lim_{x \to 2} f(x) \cdot \lim_{x \to 2} g(x)$$

$$= 4 \cdot 2$$

$$= 8$$

3. (2 points) Compute $\lim_{x\to 2} \dfrac{x^2-4}{x-2}$ if it exists.

   (a) 0

   (b) 1

   (c) 4

   (d) 6

   (e) The limit does not exist

Factor & Cancel:

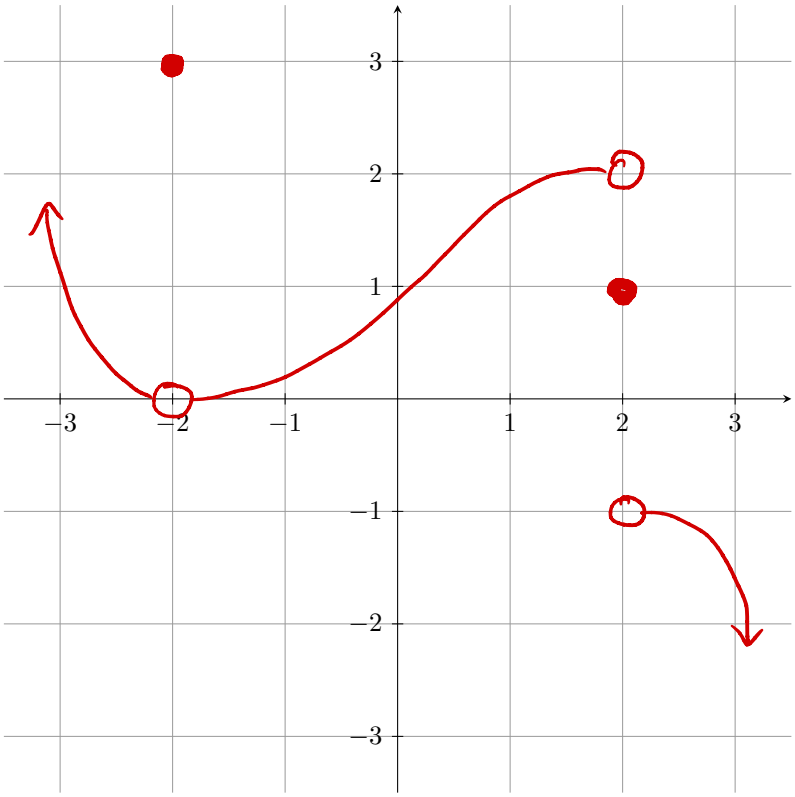
$$\lim_{x\to 2} \frac{x^2-4}{x-2} = \lim_{x\to 2} \frac{(x+2)(x-2)}{(x-2)}$$

$$= \lim_{x\to 2} x+2 = \lim_{x\to 2} x + \lim_{x\to 2} 2$$

$$= 2+2$$

$$= 4$$

4. (4 points) Draw the graph of a function f, whose domain contains $[-3,3]$, that satisfies the properties below. Sketch your graph on the grid.



- $f(2) = 1$ ✓
- $f(-2) = 3$ ✓
- $\lim_{x\to 2^+} f(x) = -1$ ✓
- $\lim_{x\to 2^-} f(x) = 2$ ✓
- $\lim_{x\to -2} f(x) = 0$ ✓

There are many possible answers!