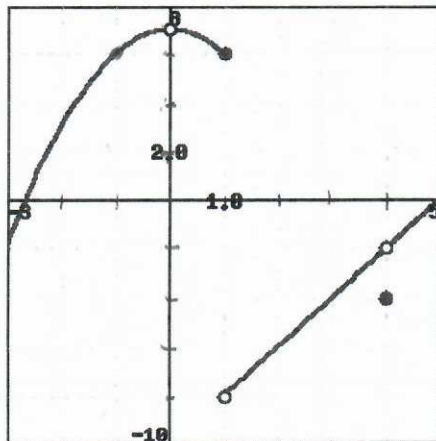# Week 2 Quiz (Chapter 1, Section 2)

Name:

Nice work

1. a.

Use the figure below, which gives a graph of the function $f(x)$, to give values for the indicated limits. If a limit does not exist, enter **none**.

(a) $\lim\limits_{x \to -1} f(x) =$ 6 ✓

(b) $\lim\limits_{x \to 0} f(x) =$ 7 ✓

(c) $\lim\limits_{x \to 1} f(x) =$ none ✓

(d) $\lim\limits_{x \to 4} f(x) =$ -2 ✓

---

1. b.

For those limits which did not exist in part a., explain whether limits exist from the left or right.

question c's ($\lim\limits_{x \to 1} f(x)$) limit does not exist, but from the left the limit would be 6 and from the right the limit would be -8. ✓

2. a. Sketch a plot of the graph of function h on the axes below that satisfies:

- $h(-2) = 2$ and $\lim_{x \to -2} h(x) = 1$
- $h(-1) = 3$ and $\lim_{x \to -3} h(x) = 3$
- $h(0) = -1$, $\lim_{x \to 0^+} h(x) = -2$, and $\lim_{x \to 0^-} h(x) = 2$
- $h(1)$ is undefined, but $\lim_{x \to 1} h(x) = 0$
- $h(2) = 1$, but $\lim_{x \to 2} h(x)$ is undefined

$y = h(x)$
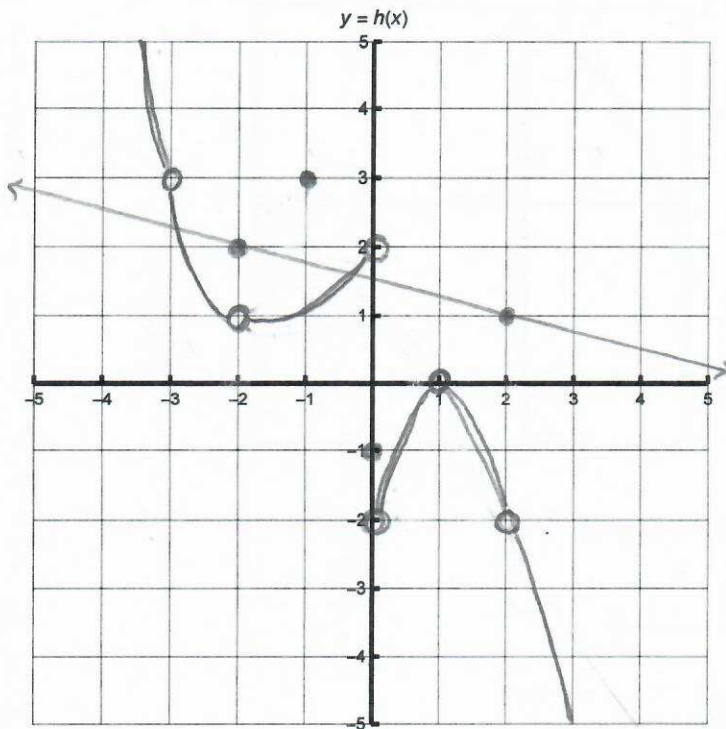
$(2,1)$

$(-2,2)$

$\dfrac{2-1}{-2-2} = \dfrac{1}{-4}$

2. b. Draw the line connecting the graph above at x=-2 and x=2. Then write its equation using

a. Point-slope form

$y - y = m(x - x)$

$\boxed{y - 1 = -\tfrac{1}{4}(x - 2)}$

b. Slope-intercept form

$y = mx + b$

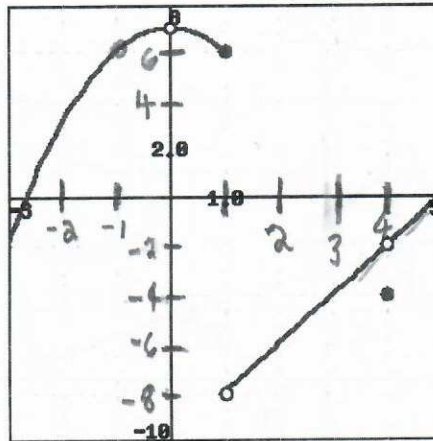$\boxed{y = -\tfrac{1}{4}x + 1.5}$

$2 = -\tfrac{1}{4}(-2) + b$

$2 = \tfrac{1}{2} + b$

$1.5 = b$

1. a.

Use the figure below, which gives a graph of the function $f(x)$, to give values for the indicated limits. If a limit does not exist, enter **none**.

(a) $\lim\limits_{x \to -1} f(x) =$ ___6___ ✓

(b) $\lim\limits_{x \to 0} f(x) =$ ___8___ ✓

(c) $\lim\limits_{x \to 1} f(x) =$ ___none___ ✓

(d) $\lim\limits_{x \to 4} f(x) =$ ___-2___ ✓

---

1. b.

For those limits which did not exist in part a., explain whether limits exist from the left or right.
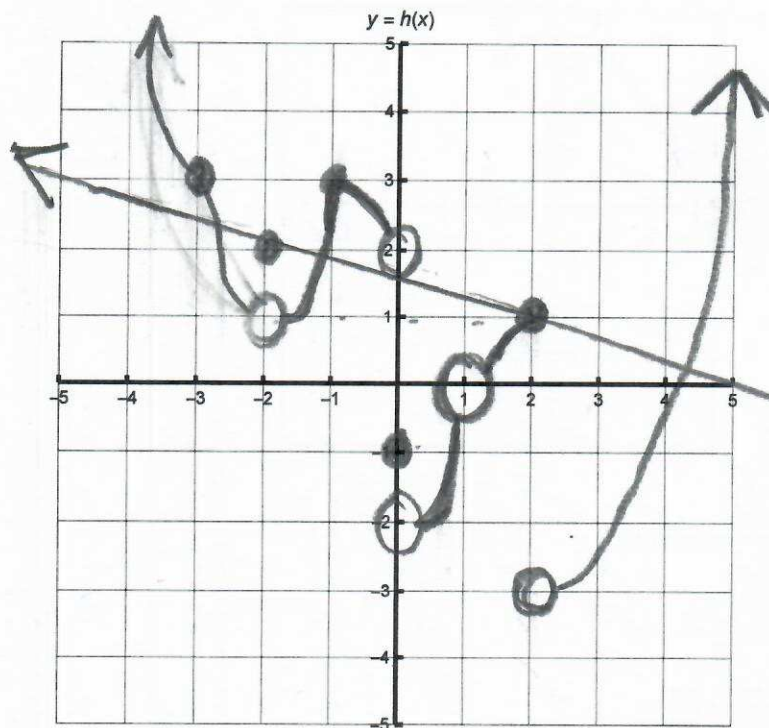
$$\lim_{x \to 1^-} f(x) = 6$$

✓

$$\lim_{x \to 1^+} f(x) = -8$$

2. a. Sketch a plot of the graph of function *h* on the axes below that satisfies:

- $h(-2) = 2$ and $\lim_{x \to -2} h(x) = 1$
- $h(-1) = 3$ and $\lim_{x \to -3} h(x) = 3$
- $h(0) = -1$, $\lim_{x \to 0^+} h(x) = -2$, and $\lim_{x \to 0^-} h(x) = 2$
- $h(1)$ is undefined, but $\lim_{x \to 1} h(x) = 0$
- $h(2) = 1$, but $\lim_{x \to 2} h(x)$ is undefined

Nice work!

$y = h(x)$

$(-2, 2)$
$(2, 1)$

2. b. Draw the line connecting the graph above at x=-2 and x=2. Then write its equation using

a. Point-slope form

$$Y - 1 = -\tfrac{1}{4}(x - 2)$$

$$\frac{1 - 2}{2 + 2} = \frac{-1}{4}$$

b. Slope-intercept form

$$y = -\tfrac{1}{4}x + \tfrac{3}{2}$$

$Y - 1 = -\tfrac{1}{4}(x - 2)$

$\begin{array}{l} Y - 1 = -\tfrac{1}{4}x + \tfrac{1}{2} \\ +1 \end{array}$ $+1$

$\tfrac{1}{2} + \tfrac{2}{2} = \tfrac{3}{2}$