Limits Day 4 HW – Sketching Graphs based on Limits   Name: _____

Sketch a graph of $f(x)$ that would meet the following conditions:
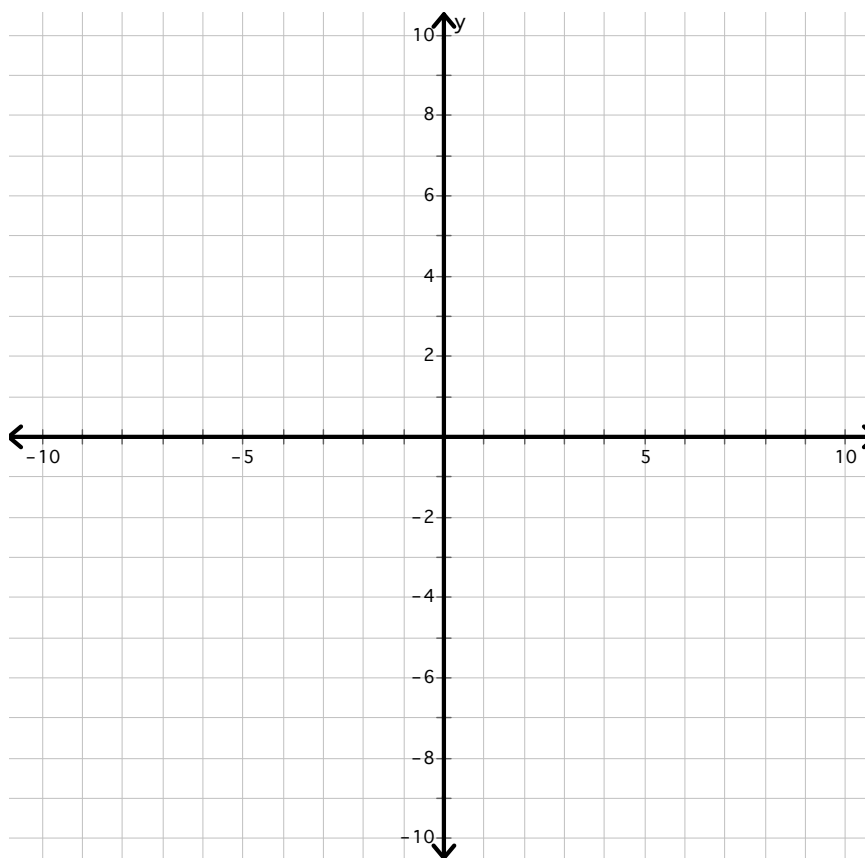
1) $f(x) = 0$ at $x = -1$ and $x = 2$

$\lim\limits_{x \to \infty} f(x) = 1$

$\lim\limits_{x \to -\infty} f(x) = 1$

$\lim\limits_{x \to 1} f(x) = -\infty$

Crosses the $y - axis$ at -2

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2) $f(x) = 0$ at $x = -2$

$\displaystyle\lim_{x\to\infty} f(x) = 0$

$\displaystyle\lim_{x\to-\infty} f(x) = 0$

$\displaystyle\lim_{x\to 1} f(x) = \infty$

Crosses $y - axis$ at 2

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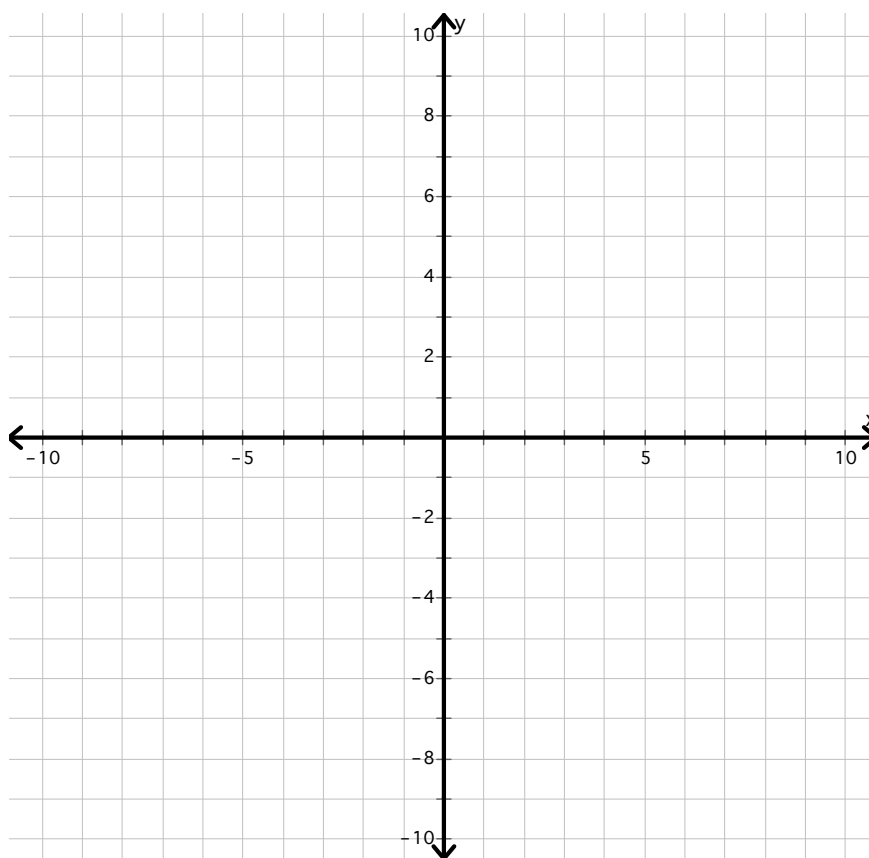3) $f(x) = 0$ at $x = -2$

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

   $$\lim_{x \to -\infty} f(x) = 2$$

   $$\lim_{x \to -1} f(x) = \text{DNE}$$

   Crosses $y - axis$ at 4

   $f(x) = \text{DNE}$ at $x = 3$ and $x = -1$