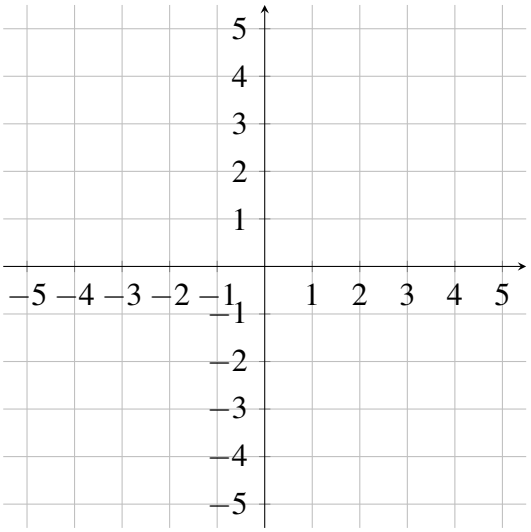
Name: _____ _____ / **16**

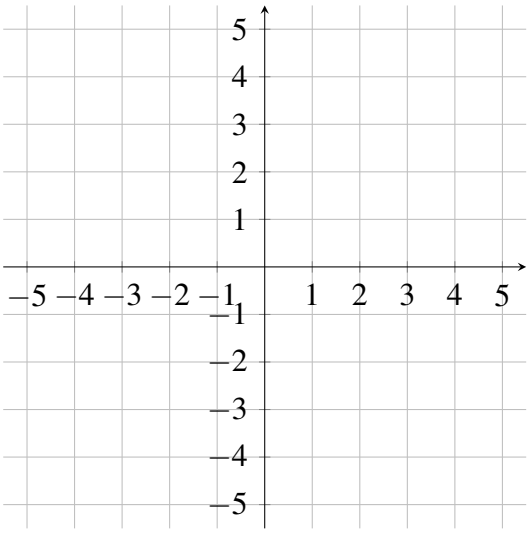
No aids (calculator, notes, text, etc.) are permitted. Show all work for full credit and box your final answer.

1. [4 points]

a. State the **domain** and **range** of the following function $f(x) = \sqrt{x+2}$. **Sketch a graph** of the given function below.

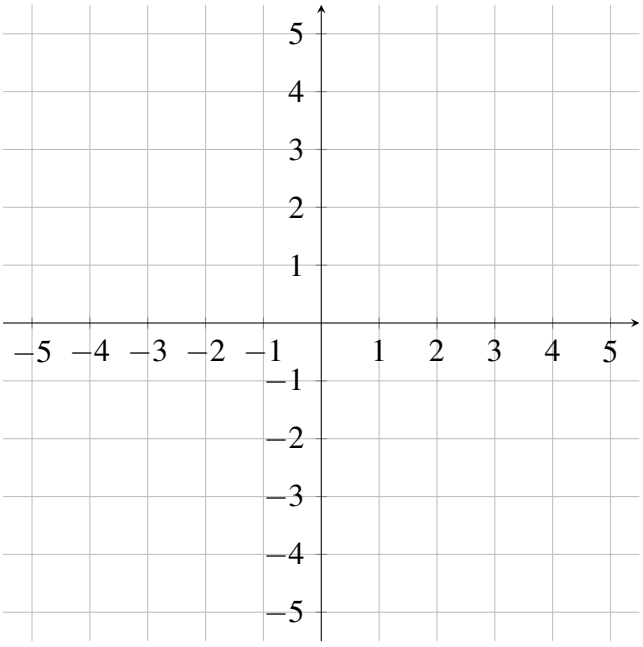


b. State the **domain** and **range** of the following function $f(x) = \dfrac{1}{x-1}$. **Sketch a graph** of the given function below.

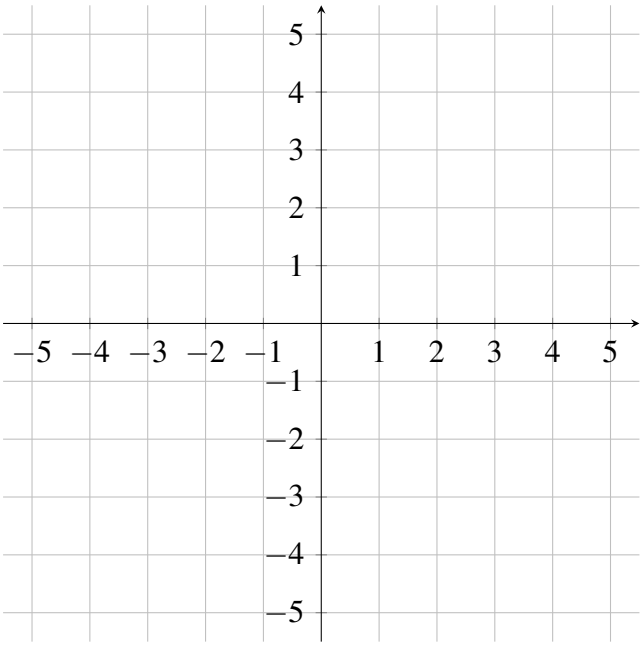


2. [6 points] Sketch the graphs of the following functions. **Indicate (mark on your graph)** intercept points.

a. $g(x) = \dfrac{|x|}{3}$

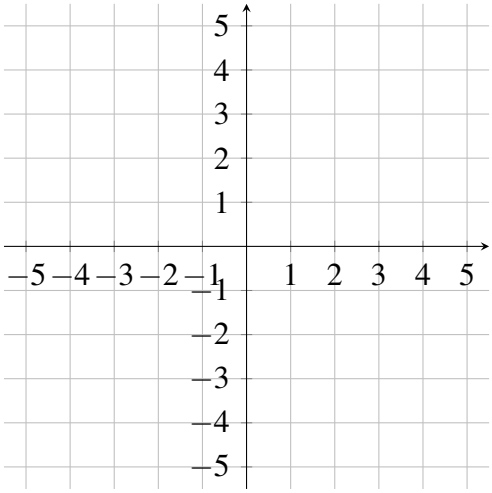


b. $v(x) = \begin{cases} 3-x, & x < -1, \\ \sqrt[3]{x}, & x \geq -1 \end{cases}$



3. [4 points]

a. Sketch the following function $f(x) = -(x-1)^2 + 3$. **Indicate (mark on your graph)** intercept points.



b. Determine the basic function that has been shifted, reflected, stretched, or compressed.

4. [2 points] **Write a formula** for the function described below.

Use the function $f(x) = x^3$. Compress the function horizontally by a factor 3 and move it 1 unit down.