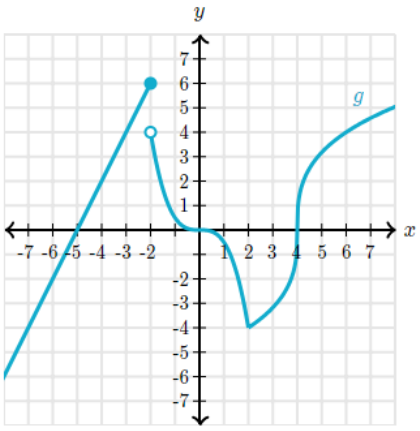
Math 19: Quiz 1 Solutions Name:

For full credit you must show your work. Partial credit may be given for incorrect solutions if sufficient work is shown.

1. The function $g(x)$ is graphed below.



- $\lim_{x \to -2^-} g(x) = 6$
- $\lim_{x \to -2^+} g(x) = 4$
- $\lim_{x \to -2} g(x) = \text{DNE}$
- $g(-2) = 6$

2. Evaluate the following limit.

$$\lim_{x \to 3} \frac{x^2 - 5x + 6}{x - 3}$$

Plugging in $x = 3$ we get

$$\lim_{x \to 3} \frac{x^2 - 5x + 6}{x - 3} = \frac{3^2 - 5(3) + 6}{3 - 3} = \frac{0}{0}.$$

This is in $0/0$ indeterminate form. We need to do more work (FACTOR).

$$\lim_{x \to 3} \frac{x^2 - 5x + 6}{x - 3} = \lim_{x \to 3} \frac{(x-2)\cancel{(x-3)}}{\cancel{x-3}} = \lim_{x \to 3} x - 2 = 3 - 2 = \boxed{1}$$