

Name: Key

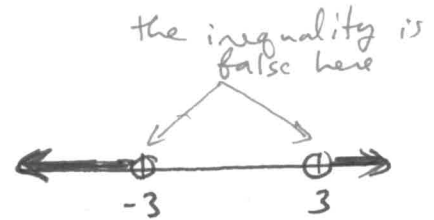
Section: _____

You have 10 minutes to complete the quiz.

1. (2 points) Find the set of numbers x where this is true:

Step 1: ~~xxxxxxxx~~
 $|x| = 3$
 means $x = -3$ or $x = 3$

$$|x| > 3$$



Step 2: Left side is Always defined

Step 3: check intervals
 $x = 4 \Rightarrow |4| = 4$ ✓ (greater than 3)
 $x = 0 \Rightarrow |0| = 0$ ✗ (less than 0)
 $x = -4 \Rightarrow |-4| = 4$ ✓ (greater than 3)

1 pt for endpoint, 1 pt for shading

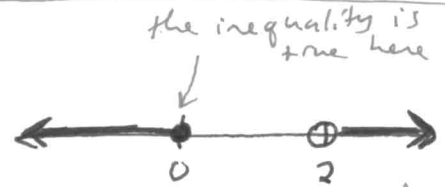
0 pts if you write $(3, \infty)$

Write your answer in interval notation: $(-\infty, -3) \cup (3, \infty)$

2. (4 points) Find the set of numbers x where this is true:

Step 1 $\frac{x}{x-2} = 0$
 means $x = 0$ ← 1 pt

$$\frac{x}{x-2} \geq 0$$



Step 2: undefined when $x = 2$ ← 1 pt
 1 pt for shading of both points

Step 3: check intervals
 $x = -1 \Rightarrow \frac{-1}{-1-2} = \frac{-1}{-3} = \frac{1}{3}$ ✓ (greater than 0)
 $x = 1 \Rightarrow \frac{1}{1-2} = \frac{1}{-1} = -1$ ✗ (less than 0)
 $x = 3 \Rightarrow \frac{3}{3-2} = \frac{3}{1} = 3$ ✓

Write your answer in interval notation: $(-\infty, 0] \cup (2, \infty)$

3. (1 point) Suppose that $f(1) = 2$, that $f(2) = 2$, and that $f(3) = 5$. Is f a function?

each input has ONLY ONE output Yes

4. (1 point) Suppose that $g(2) = 1$, that $g(2) = 2$, and that $g(5) = 3$. Is g a function?

2 has TWO outputs NO

5. (2 points) Let $f(x) = \boxed{x^2} + \boxed{x}$ Simplify the following:

$$f(2x) = (\boxed{2x})^2 + (\boxed{2x}) \quad 1 \text{ pt}$$

$$\boxed{f(2x) = 4x^2 + 2x} \quad 1 \text{ pt}$$