

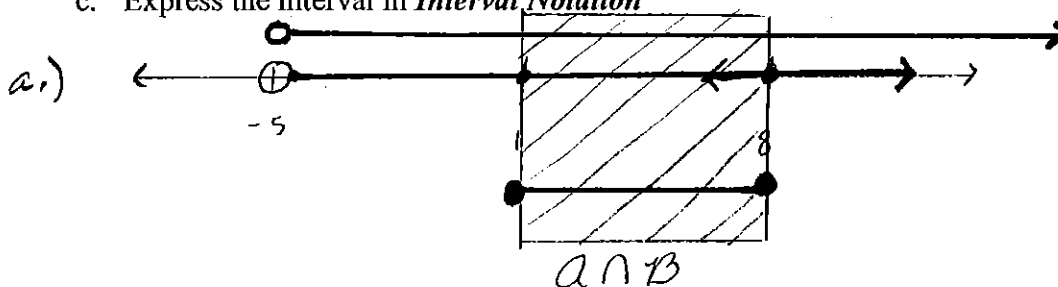
Math 0099
University of North Georgia
Spring 2015
Quiz #2

Name: Key Date: January 27, 2015

Consider the following sets:

$$\left. \begin{aligned} A &= \{x \in \mathbb{N} \mid x \leq 8\} \rightarrow \{1, 2, 3, 4, 5, 6, 7, 8\} \\ B &= \{x \in \mathbb{Z} \mid x > -5\} \rightarrow \{-4, -3, -2, \dots\} \end{aligned} \right\} A \cap B = \{1, 2, 3, 4, 5, 6, 7, 8\}$$

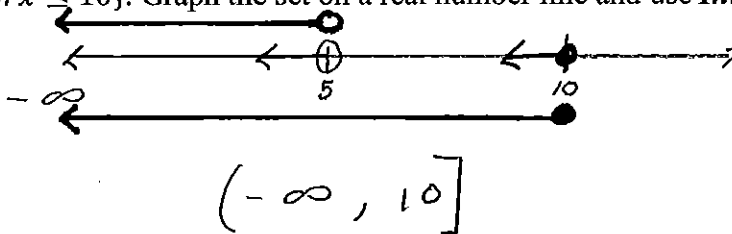
1. Define $A \cap B$ by the following:
 - a. Graph the set on a **single** real number line.
 - b. Express the set in **Set-Builder Notation**
 - c. Express the interval in **Interval Notation**



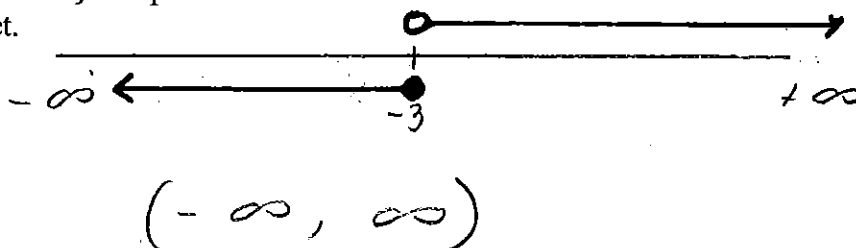
b.) $A \cap B = \{x \in \mathbb{N} \mid x \leq 8\}$ or $\{x \in \mathbb{Z} \mid 1 \leq x \leq 8\}$

c.) $[1, 8]$

2. Consider $\{x \mid x < 5 \text{ or } x \leq 10\}$. Graph the set on a real number line and use **Interval Notation** to express the set.



3. Consider $\{x \mid x \leq -3 \text{ or } x > -3\}$. Graph the set on a real number line and use **Interval Notation** to express the set.



4. Use the chart below to place a check mark indicating which sets the item on the left is a member of.

	N	W	Z	Q	Q'	R
$\frac{4}{3}$				✓		✓
-1			✓	✓		✓
$1.\bar{3}$				✓		✓
$-\pi$					✓	✓
0.15				✓		✓

5. No rational numbers are natural numbers. True or False? Explain your answer.

False, because 16 is a natural number and $\frac{16}{1}$ is a rational number.