



College Algebra Workshop 0



Unit 0 - Representing Sets of Real Numbers Additional Practice Problems

In problems 1–8, a subset of real numbers is described in words. Write its representation in set-builder notation.

<i>Verbal Description</i>	<i>Set-Builder Notation</i>
1. All real numbers greater than -4	
2. All real numbers less than or equal to -3 or greater than $6\frac{1}{3}$	
3. All real numbers less than 0 or greater than or equal to 3.2	
4. All real numbers greater than -1 but less than or equal to 1	
5. All real numbers from -3 to $\sqrt{2}$	
6. All real numbers from -5 to 5	
7. All real numbers between -4 and 4	
8. All real numbers between -4 and π	

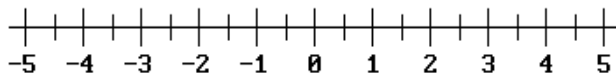
In problems 9–12, a subset of real numbers is described using set-builder notation. Write its representation in interval notation.

<i>Set-Builder Notation</i>	<i>Interval Notation</i>
9. $\{x \mid x > 2.29\}$	
10. $\{x \mid x \leq -5 \text{ or } x > -1\}$	
11. $\{x \mid h \leq x < k + 2\}$	
12. $\{x \mid -5 - h \leq x \leq -5 + h\}$	

13. For the set of integers from -4 to 4 :

a. List the elements of this set inside of braces.

b. Plot this set on the given number line.



14. Explain the difference between the set $\{0, 1\}$ and the interval set $[0, 1]$. Do these sets contain the same numbers?

In problems 15–18, a subset of real numbers is written in interval notation. List the boundary values of the set.

15. $(0, 4)$

16. $(1, 5]$

17. $(-\infty, 100)$

18. $(-2, h) \cup (3, k]$

In problems 19–23, plot each subset of real numbers on the number line to its right.

<i>Interval Notation</i>	<i>Number Line</i>
19. $[0.5, 4.5)$	
20. $(-5, -1]$	
21. $(-\infty, 3]$	
22. $[-2, 1) \cup (3.25, \infty)$	
23. $(-\infty, 0] \cup [1, 2.25)$	

24. Each of the following subsets of real numbers represented in set-builder notation is a set that is familiar to you. Give the common name for each set. For example, the set represented in part a is better known as the set of negative numbers.

a. $\{x \mid x < 0\}$

b. $\{x \mid x = 2n, \text{ where } n \text{ is an integer}\}$ (*Hint:* Try writing down a few numbers in this set.)

c. $\{x \mid x = p/q, \text{ where } p \text{ and } q \text{ are integers but } q \neq 0\}$

d. $\{x \mid x \text{ is not a rational number}\}$