PROBLEM SET 1-1
(Properties of Real Numbers)

To which set of numbers does each number belong?

1. 4 **2.** $\sqrt{6}$ **3.** π **4.** -6

Graph each number on a number line. Graph all numbers on the same number line.

5. 0 **6.** $-\sqrt{24}$ **7.** -2 **8.** $2\frac{1}{2}$ **9.** $-4\frac{2}{3}$

Replace each ____ with the symbol <, >, or = to make the sentence true.

10. -7 _____ -9 **11.** 14 _____ $\sqrt{14}$

Find the opposite and the reciprocal of each number.

12. 200 **13.** $3\frac{3}{5}$ **14.** -0.01 **15.** $-\frac{7}{2}$

Name the property of real numbers illustrated by each equation.

16. $92.5(1) = 92.5$ **17.** $\pi(a+b) = \pi a + \pi b$ **18.** $-7+4 = 4+(-7)$

19. $\left(2\sqrt{10}\right)\cdot\sqrt{3} = 2\left(\sqrt{10}\cdot\sqrt{3}\right)$ **20.** $29\pi = \pi\cdot 29$ **21.** $-\sqrt{5}+0 = -\sqrt{5}$

22. $(-8)+\left[-(-8)\right] = 0$ **23.** $\frac{4}{7}\cdot\frac{7}{4} = 1$ **24.** $25(2x+5y) = 50x+125y$

Simplify each expression.

25. $|10.3|$ **26.** $|-0.06|$ **27.** $-|-25|$ **28.** $0.2|-8|$

29. $\left|-\frac{1}{3}\right|$ **30.** $|7-10|$ **31.** $|10-7|$ **32.** $|5|-|-7|$

Use order of operations to simplify each expression.

33. $\frac{8+5\cdot 2}{12}$ **34.** $(40+24)\div 8-(2^2-1)$ **35.** $40+24\div 8-2^2-1$

Show that each statement is false by finding a counterexample (an example the makes the statement false):

36. The reciprocal of each whole number is a whole number.
37. The opposite of each natural number is a natural number.
38. There is no whole number that has an opposite that is a whole number.
39. There is no integer that has a reciprocal as an integer.
40. The product of two irrational numbers is an irrational number.