Math 131 - Dr. Miller - Supplement to HW #12: Introduction to Sets

The rest of HW #12 will be posted on the course web site, as usual. Staple this page to the back.

1. Write in words how to read the given notation out loud. (You can write the numbers as numerals still, and keep letters used as variables or set-names, but *everything* else needs to be written out in words.)

   (a) $14 \in \{2, 4, 6, \ldots\}$

   (b) $10 \notin \{x \mid x^2 < 20\}$

   (c) $|\emptyset| = 0$

2. Convert the given sentence entirely to notation.

   (a) -3 is not a member of the set of positive integers.

   (b) 15 is a member of the set containing all x for which the absolute value of x is less than 20.

   (c) The cardinality of the set of all x for which $x^2 = 9$ is 2.

3. Let $X = \{\heartsuit\clubsuit, *, \$, 0, \{k, 2\}, Ohio\}$. Fill in each blank with the correct choice of $\in$ or $\notin$.

   (a) 0_____X (b) $\heartsuit$_____X (c) $\emptyset$_____X

   (d) $Ohio$_____X (e) $\{Ohio\}$_____X (f) $\{k, 2\}$_____X

4. Convert from roster notation to set-builder, or vice versa.

(a) $\{0, 2, -2, 4, -4, \ldots\}$

(b) $\{x \mid x \text{ is a negative multiple of } 10\}$

(c) $\{n \mid n = x + y \text{ for distinct prime numbers } x, y \text{ smaller than } 10\}$

(d) $\{d, i, s, c, r, e, t, m, a, h\}$ (A little weird, maybe, but variables don't have to represent numbers!)