(1) Give three distinct uses of numbers.

(2) Explain the difference between a number and a numeral, with examples.

(3) What is the largest real number $x$ such that $x < 1$?

(4) Give the interval notation for the set of numbers determined by the following conditions.

   (a) $-1 \leq x \leq 2.5$

   (b) $3 < x < 3.2$

   (c) $3 \leq x < \pi$

   (d) $\frac{1}{4} < x \leq 1$

   (e) $x < 7$

   (f) $x \geq 2.1$

(5) Find the straight lines satisfying each of the following conditions.

   (a) slope 5, through the point $(1, 3)$.

   (b) slope $\frac{1}{2}$, through the point $(-1, 2)$.

   (c) parallel to $x + 3y = 1$, through $(\frac{1}{2}, 1)$.

   (d) perpendicular to $y = \frac{2}{5}x + 1$, through $(1, -2)$.

   (e) through the points $(1, -2)$ and $(3, 1)$. 
(6) Sketch the graphs of the following curves.
(a) \( y = 1.5x + 1 \)
(b) \( y = -2x + 2 \)
(c) \( y = \frac{1}{x} \)
(d) \( y = 3^x \)
(e) \( y = (\frac{1}{2})^x \)

(7) Solve by completing the square
(a) \( x^2 + 4x - 21 = 0 \)
(b) \( x^2 - 2x - 2 = 0 \)
(c) \( x^2 + 6x + 11 = 0 \)

(8) Factor
(a) \( x^2 + 2x - 3 \)
(b) \( x^2 - 7 \)
(c) \( x^2 + 2x - 1 \)
(d) \( x^2 + 5 \)
(e) \( x^2 + 2x + 2 \)