

## TUTORIAL 1 – SHEET 3

1. Express each of the following numbers in scientific notation  
 a) 524    b) -325    c) 0.35    d) 3.5  
 e) 5429    f) -10.362    d) 0.005    h) 10
  
2. Write each of the following numbers as a single number in scientific notation:  
 a)  $(5 \times 10^2) \times (3 \times 10^5)$     b)  $(5 \times 10^6) \times (4 \times 10^{-3})$   
 c)  $(5 \times 10^{-6}) \times (4 \times 10^5)$     d)  $0.003 \times (5 \times 10^{-2})$
  
3. State the largest and the smallest of the following three numbers:  

$$0.00055, \quad 5.5 \times 10^{-17}, \quad 5.5 \times 10^2$$
  
4. Express each of the following numbers to 2 decimal places:  
 a) 6.945    b) 7.9367    c) 7.999    d) -1.602    e) -3.491
  
5. Express 496.324 to  
 a) 3 significant figures  
 b) 4 significant figures  
 c) 1 significant figure
  
6. If  $A = \{1, 2, 4, 7\}$  and  $B = \{3, 5, 7, 9\}$  and the universal set is defined as  $\mathcal{E} = \{n : n \in \mathbb{N}, 1 \leq n \leq 10\}$ , list the members of  
 a)  $\bar{A}$     b)  $\bar{B}$     c)  $A \cup B$     d)  $A \cap B$   
 e)  $\overline{A \cap B}$     f)  $\overline{A \cup B}$
  
7. A company manufactures fuses rated at 1A, 3A, 5A, 13A and 15A. If the sets  $C$  and  $D$  are defined by  

$$C = \{1, 3, 5\}, \quad D = \{1, 13\}$$
 represent them on a Venn diagram.
  
8. Sketch each of the following sets on a real number line:  
 a)  $\{x : x \in \mathbb{R}, 0 \leq x \leq 4\}$   
 b)  $\{x : x \in \mathbb{R}, -1 \leq x \leq 1\} \cup \{x : x \in \mathbb{R}, 3 \leq x \leq 5\}$   
 c)  $\{x : x \in \mathbb{R}, -3 \leq x \leq 2\} \cap \{x : x \in \mathbb{R}, 1 \leq x \leq 4\}$