

## Revision Practice 6



1. Suppose a universal set  $\varepsilon = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$ . If  $A = \{x: x \text{ is an even number}\}$  and  $B = \{x: x \text{ is a multiple of } 3\}$ ,

- (a) list the elements in  $A$ ,  
 (b) list the elements in  $B$   
 (c) find  $A \cap B$ ,  
 (d) find  $A \cup B$ .

2. Let a universal set  $\varepsilon = \{\text{red, orange, yellow, green, indigo, blue, purple}\}$ ,  $A = \{\text{red, yellow, blue}\}$  and  $B = \{\text{yellow, green}\}$ .

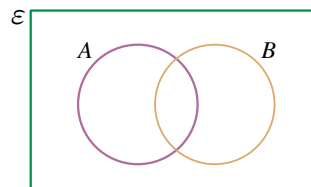
- (a) Find  $n(A)$ .  
 (b) Find  $A'$ .  
 (c) Is  $B$  a subset of  $A$ ?

3. Let  $E = \{\text{magnesium, iron, zinc, gold}\}$  and  $F = \{\text{gold, silver, iron}\}$ .

- (a) Suggest a universal set that contains the two sets  $E$  and  $F$ .  
 (b) Find  $E \cap F$ .  
 (c) List all the possible subsets of  $E \cap F$ .

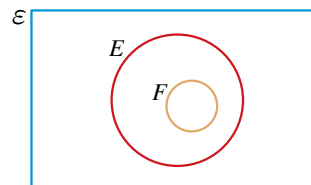
4. Copy the Venn diagram and shade the region that represents

- (a)  $A \cap B$ ,  
 (b)  $A \cup B'$ .



5. Refer to the Venn diagram.

- (a) State the relationship between the sets  $E$  and  $F$ .  
 (b) Find  $E \cup F$  and  $E \cap F$ .  
 (c) Copy the Venn diagram and shade the region that represents  $E \cap F'$ .



6. Let  $\mathbf{A} = \begin{pmatrix} 2 & 3 \\ -6 & 0 \end{pmatrix}$ ,  $\mathbf{B} = \begin{pmatrix} 3 & -4 \\ 1 & 7 \end{pmatrix}$  and  $\mathbf{C} = \begin{pmatrix} -5 & -1 \\ 0 & 3 \end{pmatrix}$ . Evaluate

- (a)  $2\mathbf{A} + 3\mathbf{B}$ ,                      (b)  $\mathbf{C} - 4\mathbf{A}$ ,                      (c)  $\mathbf{BC}$ .

7. Let  $\mathbf{D} = \begin{pmatrix} 2 & -1 \\ 1 & 3 \\ 5 & 4 \end{pmatrix}$ ,  $\mathbf{E} = \begin{pmatrix} 0 & 3 & -2 \\ 1 & 4 & 6 \end{pmatrix}$  and  $\mathbf{F} = \begin{pmatrix} 1 \\ 2 \end{pmatrix}$ . Evaluate the following

where possible.

- (a)  $\mathbf{DE}$                       (b)  $\mathbf{ED}$                       (c)  $\mathbf{DF}$                       (d)  $\mathbf{EF}$