## SET THEORY

### A DEFINITIONS

#### A.1 LISTING THE ELEMENTS

**MCQ 1:** List the elements of the set *A*, which includes all objects shown in this figure:



Choose one answer:

 $\Box A = die, coin, duck$ 

 $\Box A = \{ \text{duck, coin} \}$ 

 $\Box A = \{ \text{die, duck, coin} \}$ 

**MCQ 2:** List the elements of the set A, which includes all objects in this figure:



Choose one answer:

- $\Box$  A = apple, cherry, lemon, orange
- $\Box A = \{\text{apple, cherry}\}$
- $\Box A = \{ apple, cherry, lemon, orange \}$
- $\Box A = \{ apple, cherry, lemon, orange, apple \}$

**MCQ 3:** List the elements of the set A, which includes all possible results the spinner can land on:



Choose one answer:

 $\Box A = \{A, B, C\}$ 

 $\Box A = \{A, B\}$ 

 $\Box A = \{A, C\}$ 

**MCQ 4:** List the elements of the set *A*, which includes all possible results the spinner can land on:

B A C D

Choose two correct answers:

 $\Box A = \{A, B, C, D\}$ 

 $\Box A = \{A, B, C\}$  $\Box A = \{A, B\}$ 

 $\Box A = \{D, B, C, A\}$ 

**MCQ 5:** List the elements of the set *A*, which includes all possible results the spinner can land on:



Choose one answer:

$$\Box A = \{A, B, A, C\}$$
$$\Box A = \{A, B\}$$
$$\Box A = \{A, C\}$$
$$\Box A = \{A, B, C\}$$

**MCQ 6:** Let A be the set of all possible combinations of two children in a family, where B means boy and G means girl (e.g., BG is a boy then a girl). List the elements of A. Choose one answer:

$$\Box A = \{BB, BG, GB, GG\}$$
$$\Box A = \{BB, GG\}$$
$$\Box A = \{B, G\}$$

#### A.2 CHECKING MEMBERSHIP

**Ex 7:** 2 
$$\square \in \square \notin \{1, 2, 3, 4, 5, 6\}$$
  
**Ex 8:** 7  $\square \notin \{1, 2, 3, 4, 5, 6\}$   
**Ex 9:**  $d \square \notin \{1, 2, 3, 4, 5, 6\}$   
**Ex 9:**  $d \square \notin \{a, b, c, d\}$   
**Ex 10:**  $z \square \notin \{a, b, c, d\}$ 

#### A.3 CHECKING MEMBERSHIP IN GEOMETRY

Ex 11:









Ex 14:



#### A.4 CHECKING SET EQUALITY

MCQ 15: Is this statement true or false?  $\{a, b, c\} = \{b, a, c\}$ Choose one answer:

 $\Box$  True

 $\Box$  False

MCQ 16: Is this statement true or false?  $\{a, b, c, d\} = \{a, b, c, d, e\}$ Choose one answer:

 $\Box$  True

 $\Box$  False

MCQ 17: Is this statement true or false?  $\{1, 2, 3\} = \{2, 1, 3\}$ Choose one answer:

 $\Box$  True

 $\Box$  False

MCQ 18: Is this statement true or false?  $\{1, 2, 3, 4\} = \{1, 2, 3, 4, 5\}$ Choose one answer:

 $\Box$  True

 $\Box$  False

## **B** CARDINALITY

### **B.1 COUNTING**

**Ex 19:**  $n(\{1,2,3\}) =$ 

**Ex 20:**  $n(\{a, b, c, d, e\}) =$ 

**Ex 21:**  $n(\{apple, cherry, lemon, orange\}) =$ 

**Ex 22:** Let  $A = \{ \text{die, duck, coin} \}$ . Find the number of elements in A.

n(A) =

- **Ex 23:** Let  $A = \{1, 2, 3, 4, 5\}$ . Find the number of elements in A.
  - n(A) =

# C COMPLEMENT

#### C.1 FINDING THE COMPLEMENT

**MCQ 24:** You are given the universe  $U = \{1, 2, 3, 4, 5, 6\}$  and the set  $A = \{1, 3, 5\}$ . What is the complement A'? Choose one answer:

 $\Box A' = \{2, 4, 6\}$  $\Box A' = \{1, 2, 4, 6\}$  $\Box A' = \{1, 2, 3, 4, 5, 6\}$  $\Box A' = \{3, 5\}$ 

**MCQ 25:** You are given the universe  $U = \{a, b, c, d, e, f\}$  and the set  $B = \{a, c, e\}$ . What is the complement B'?. Choose one answer:

- $\square B' = \{a, b, d, f\}$  $\square B' = \{a, b, c, d, e, f\}$
- $\Box B' = \{c, e\}$
- $\Box B' = \{b, d, f\}$

**MCQ 26:** You are given the universe  $U = \{1, 2, 3, 4, 5, 6, 7, 8\}$ and the set  $C = \{2, 4, 6, 8\}$ . What is the complement C'?. Find the complement of C. Choose one answer:

- $\Box C' = \{1, 2, 3, 5, 7\}$  $\Box C' = \{1, 3, 5, 7\}$  $\Box C' = \{2, 4, 6, 8\}$  $\Box C' = \{1, 2, 3, 4, 5, 6, 7, 8\}$

MCQ 27: The universe  $U = \{BB, BG, GB, GG\}$  lists all twochild family combinations (B = boy, G = girl; e.g., BG = boythen girl). The set  $A = \{BB\}$  includes only families with two boys. What is A'?

Choose one answer:

 $\Box A' = \{BG, GB, GG\}$  $\square A' = \{BB, BG\}$  $\Box A' = \{BG, GB\}$  $\Box A' = \{BB, GG\}$ 

MCQ 28: The universe  $U = \{BB, BG, GB, GG\}$  lists all twochild family combinations (B = boy, G = girl; e.g., BG = boythen girl). The set  $A = \{BG, GB\}$  includes families with one boy and one girl. What is A'?

Choose one answer:

 $\Box A' = \{BG, GB, GG\}$  $\Box A' = \{BB, BG\}$  $\Box A' = \{BG, GB\}$  $\Box A' = \{BB, GG\}$ 

