Set notation: subsets and n(A)

Grade 5 | Foundation and Higher | 10 questions, 34 marks

GCSE Maths topic practice

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Name: _____ **Date:** _____ **Score:** _____ **/ 34**

1 $\mathscr{E}$ = {1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12}

A = {multiples of 3}

a. List the members of A.

b. Is 8 ∈ A? Write yes or no.

c. Write down n(A).

(3 marks)

Answer _____

2 $\mathscr{E}$ = {1, 2, 3, 4, 5, 6, 7, 8, 9, 10}

S = {square numbers}

a. List the members of S.

b. List the members of S'.

c. Write down n(S').

(3 marks)

Answer _____

3 $A = \{x : x \text{ is an integer and } 2 < x \leq 7\}$

$B = \{x : x^2 < 20, x \text{ is an integer}\}$

a. List the members of A.

b. List the members of B.

c. Find n($A \cap B$).

(3 marks)

Answer _____

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4 $\mathscr{E}$ = {1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12}

P = {prime numbers}

V = {even numbers}

a. List the members of $P \cap V$.

b. List the members of $P \cap V'$.

c. List the members of $(P \cup V)'$.

(3 marks)

Answer _____

5 S = {3, 7, 9}

List all the subsets of S. Remember that $\emptyset$ and S itself are both subsets of S.

(3 marks)

Answer _____

6 $\mathscr{E}$ = {integers from 1 to 20}

A = {multiples of 4}

B = {even numbers}

C = {prime numbers}

For each statement, write yes if it is true or no if it is false.

a. $A \subset B$

b. $A \cap C = \emptyset$

c. $C \subset B'$

(3 marks)

Answer _____

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7 $\mathscr{E} = \{x : x \text{ is an integer and } 1 \leq x \leq 15\}$

$A = \{x : x \text{ is a multiple of } 3\}$

$B = \{x : x > 9\}$

a. Find n(A).

b. List the members of $A \cap B$.

c. Find n(A').

d. Find n($(A \cup B)'$).

(4 marks)

Answer _____

8 There are 32 students in a Year 10 class.

F is the set of students who study French and S is the set of students who study Spanish.

n(F) = 19, n(S) = 14 and n($F \cap S$) = 8.

a. Work out n($F \cup S$).

b. Work out how many students study neither French nor Spanish.

(3 marks)

Answer _____

9 60 people were asked which parts of a leisure centre they used last week.

P is the set of people who used the pool and C is the set of people who used the climbing wall.

38 people used the pool, 29 people used the climbing wall and 9 people used neither.

a. Find n($P \cap C$).

b. Find n($P \cap C'$).

(4 marks)

Answer _____

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10 $\mathscr{E} = \{x : x \text{ is an integer and } -5 \leq x \leq 5\}$

$A = \{x : x^2 \geq 10\}$

$B = \{x : 2x + 1 > 0\}$

$C = \{x : x^2 = 16\}$

a. List the members of A.

b. Find n(B).

c. List the members of $A \cap B'$.

d. Is $C \subset A$? Write yes or no.

(5 marks)

Answer _____

End of questions | Total 34 marks

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