

# ON-SETS WORKSHEETS

## TABLE OF CONTENTS

<u>Number</u>	<u>Topic</u>
1A	On-Sets equipment
1B	Order of beginning a shake
1C	Setting the Goal
1D	Legal Goals
1E	Illegal Goals
1F	More rules for setting the Goal
2A	$\underline{V}$ , $\underline{\Delta}$ , and ‘
2B	$\underline{U}$ operation
2C	$\underline{Q}$ operation
2D	– operation
2E	Order of operations
2F	Ambiguous Set-Names
2G	Exercises on set operations
2H	More challenging exercises about Set-Names
2I	More challenging exercises about Set-Names
2J	Venn diagrams for two sets
2K	Venn diagrams for three sets
2L	DeMorgan’s Laws
2M	The Principle of Duality
3A	Moves–Required, Permitted, Forbidden
3B	Time Limits
3C	Now and Never challenges
3D	Writing a Solution after a challenge
3E	Last cube procedure
3F	Rules for Solutions
3G	Checking Solutions
3H	Scoring after a challenge
4A	Choosing variations
4B	The required cube variation
4C	The wild cube variation
4D	The $\underline{U}$ and $\underline{Q}$ interchangeable and $\underline{V}$ and $\underline{\Delta}$ interchangeable variations
4E	The two operations and multiple operations variations
4F	The shift from Permitted variation
4G	The double color variation (Junior/Senior only)
4H	Required card (Junior/Senior only)
4I	Forbidden card (Junior/Senior only)
4J	The blank card wild variation (Junior/Senior only)
4K	Absolute value (Middle/Junior/Senior only)
4L	Two Solutions (Senior only)
4M	The symmetric difference variation–I (Senior only)
4N	The symmetric difference variation–II (Senior only)
4O	The symmetric difference variation–III (Senior only)
4P	The symmetric difference variation–IV (Senior only)

(Section 5 is for Middle/Junior/Senior only)

- 5A Subsets
- 5B Exercises on subsets
- 5C Set Equality
- 5D Exercises on set equality
- 5E Restrictions involving  $\underline{\vee}$  and  $\underline{\wedge}$
- 5F Restrictions in Solutions
- 5G Null Restrictions
- 5H More challenging exercises on Restrictions
- 5I Exercises on Restrictions
- 5J Rules governing Restrictions
- 5K = or  $\underline{C}$  in Permitted
- 5L Cubes used in Restriction and Set-Name
- 5M Chain Restrictions
- 5N More on chain Restrictions
- 5O Two or more Restrictions in a Solution
- 5P More than one = or  $\underline{C}$  in Required
- 5Q The no null Restrictions variation
- 5R Exercises on null Restrictions
- 5S Writing a Restriction for a given Set-Name
- 5T Cards removed by  $\underline{C}$  Restrictions
  
- 6A Copying the Universe on paper
- 6B Padding Set-Names containing  $\underline{U}$
- 6C Padding Set-Names containing  $\underline{\Omega}$
- 6D Padding Set-Names containing  $-$
- 6E Padding Set-Names containing  $\underline{\wedge}$
- 6F Padding Set-Names containing  $\underline{\vee}$
- 6G The Absorption Laws
- 6H "Direct" vs. "indirect" approach to Set-Names
- 6I Using cubes in both Restriction and Set-Name (Middle/Junior/Senior only)
- 6J Padding Restrictions (Middle/Junior/Senior only)
- 6K Leaving holes in Restrictions (Middle/Junior/Senior only)
- 6L Special strategies for a Goal of 0 (Middle/Junior/Senior only)
- 6M Some additional strategies
- 6N More strategies
- 6O Strategies when you are ahead in the match
- 6P Strategies when you are behind in the match
  
- 7A Karnaugh Maps
- 7B Finding the cards of a Set-Name on a map
- 7C Writing Set-Names from a map
- 7D Writing several Set-Names for the Goal
- 7E Grouping cards in a map
- 7F Using maps to write Restrictions (Middle/Junior/Senior only)
- 7G More Restrictions from maps (Middle/Junior/Senior only)
- 7H Using a map to check Solutions (Middle/Junior/Senior only)