Answer:

- The pattern is: One block up, one block down, repeated again and again.
- So, the rule is: Alternate up and down arrangement of the block.

Q2. What is the rule in Isha's brother's kurta?

Answer:

- Rule: The block turns clockwise every time.
- So, if the block starts facing up, the next one turns 90°, then 180°, then 270°, and then back to original.

Q3. Turning Patterns – Block is turned in different ways:

Rule 1: One-fourth turn (90°)

- Pattern: Turns 90° every time → □
- Example: Up \rightarrow Right \rightarrow Down \rightarrow Left \rightarrow Up

Rule 2: Half turn (180°)

Pattern: Up → Down → Up → Down

Rule 3: Three-fourth turn (270°)

- Pattern: Up \rightarrow Left \rightarrow Down \rightarrow Right \rightarrow Up
- Try to complete each pattern by continuing the rotation rule.

Q4. Practice Time:

(a) What should come next in this pattern?

 $N \rightarrow N \rightarrow N \rightarrow ?$

- ✓ Answer: Rule seems to repeat **no turn**
 - Next letter = N

(b) Pattern of "F" rotated

$$F \rightarrow F (90^\circ) \rightarrow F (180^\circ) \rightarrow ?$$

- Answer: F (270°), then back to original.
 - Next shape = F rotated 270°

Q5. Magic Square Puzzle (using 21 to 29)

Fill the square such that every row, column, and diagonal adds to 75

Example grid (solution):

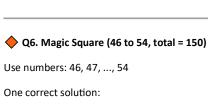
25 29 21

22 25 28

27 21 27

✓ Each row adds up to 75 (25+29+21 = 75)

Try adjusting numbers between 21 and 29 while checking totals.



49 52 49

50 50 50

51 48 51

✓ Each row, column, and diagonal = 150

Q7. Number Pattern:

Look at these:

- 1 = 1×1
- 121 = 11×11
- 12321 = 111×111
- 1234321 = 1111×1111
- Pattern: Numbers of the form: 1, 121, 12321, 1234321...
 These are palindromes and result of square of repeating 1's.

Q8. Odd Numbers Addition Pattern

- 1 = 1
- 1 + 3 = 4
- 1+3+5=9
- 1+3+5+7=16
- 1+3+5+7+9=25
- ✓ Rule: Adding first n odd numbers gives:

Sum = $n \times n$

For example:

• First 5 odd numbers = $1+3+5+7+9 = 25 \rightarrow 5 \times 5$

Q9. Smart Adding / Secret Numbers Game

Example clue:

- Add 5 to your age → Multiply by 2 → Subtract 10 → Divide by 2
 Final result = your age
- It works because:

 $((x+5)\times 2-10)\div 2=x((x+5)\times 2-10)\div 2=x$

- Make your own puzzles using patterns like:
 - Multiply, add, subtract, divide
 - Flip digits (e.g., 34 + 43 = 77 → Palindrome)

Q10. Palindromes

- Words/numbers same forward and backward
 - o Examples: 121, 1331, 12321, 77, 363
- ★ To form palindromes:
 - Pick a number (like 48)
 - Reverse digits (84)
 - Add \rightarrow 48 + 84 = 132
 - Reverse again \rightarrow 132 + 231 = **363** (a palindrome)

Would you like to continue next with **Chapter 8 – Mapping Your Way** in the same step-by-step manner?