

Tender Heart High School, Sec - 33B, Chandigarh

Class:- VI

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Subject:- Mathematics

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Ch-2 Operations on whole Numbers.

### Patterns in whole Numbers.

Patterns help us in simplifying processes without actually calculating. While observing patterns, we usually

- (i) recognise and extend the pattern.
- (ii) analyse and describe the pattern.
- (iii) supply some missing parts in the given pattern.

### Magic Square :->

A magic square is an arrangement of different numbers in the form of square such that the sum of the numbers in every horizontal line, every vertical line and every diagonal line is the same.

### EXERCISE 2B

1. Study the following patterns. Write the next three steps.

$$111 \div 3 = 37$$

$$222 \div 6 = 37$$

$$333 \div 9 = 37$$

$$444 \div 12 = 37$$

$$\rightarrow 555 \div 15 = 37$$

$$666 \div 18 = 37$$

$$777 \div 21 = 37$$

2. Observe the following pattern and answer the questions that follow:

$$1 + 2 + 3 + 4 + 5 = 15$$

$$2 + 3 + 4 + 5 + 6 = 20$$

$$3 + 4 + 5 + 6 + 7 = 25$$

(i) By which number should we multiply the middle number to get the sum?

Soln:- Middle term = 3  
So  $3 \times 5 = 15$   
So, '5' is the number.

(ii) Write the row of the pattern which gives the sum as 75.

Soln:-  $13 + 14 + 15 + 16 + 17 = 75$

(iii) Can there be any row of the pattern which gives the sum as 92?

Soln:- No, There can not be any row of pattern which gives the sum as 92.

$\therefore$  The sum is a multiple of 5  
and 92 is not a multiple of 5.

3. Complete each of the following magic squares by supplying the missing numbers.

|   |   |   |
|---|---|---|
| 4 | 9 | 2 |
| 3 | 5 | 7 |
| 8 | 1 | 6 |

|    |    |    |    |
|----|----|----|----|
| 2  | 15 | 16 | 5  |
| 9  | 12 | 11 | 6  |
| 13 | 8  | 7  | 10 |
| 14 | 3  | 4  | 17 |

Rowwise sum =  $4 + 9 + 2 = 15$   
 Column wise sum =  $9 + 5 + 1 = 15$   
 Diagonal wise sum =  $(2 + 5 + 8) = 15$

Rowwise sum =  $2 + 15 + 16 + 5 = 38$   
 Columnwise sum =  $2 + 9 + 13 + 14 = 38$   
 Diagonalwise sum =  $2 + 12 + 7 + 17 = 38$

### Exercise 2C

#### Multiple Choice Questions.

Choose the correct answer in each of the following:-

1. The smallest whole number is  
 (a) 1 (b) 2 (c) 10 (d) None of these

2. The least number of 4 digit which is exactly divisible by 7 is.

(a) 1,015 (b) 1,008 (c) 1,001 (d) 1,022

Smallest 4 digit Number = 1000

$$\begin{array}{r}
 142 \\
 7 \overline{) 1000} \\
 \underline{- 7} \phantom{00} \\
 30 \phantom{0} \\
 \underline{- 28} \phantom{0} \\
 20 \\
 \underline{- 14} \\
 66
 \end{array}$$

The least 4-digit number exactly divisible by 7  
 is  $1000 + (7 - 6) = 1000 + 1 = 1001$

3. The largest number of 4 digits exactly divisible by 13 is.

(a) 9,996

(b) 9,997

(c) 9,995

(d) 9,984

Soln:→ Largest 4-digit no = 9999  
A/Q!

$$\begin{array}{r}
 13 \overline{) 9999} \\
 \underline{- 769} \phantom{0} \\
 89 \phantom{0} \\
 \underline{- 78} \phantom{0} \\
 119 \phantom{0} \\
 \underline{- 117} \\
 002
 \end{array}$$

$9999 - 2 = 9997$  is the largest 4-digit no. exactly divisible by 13.