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# MATHS

## SAMPLE BOOK

8 GRADE

# MATHS

I'm the

## Intelli Kid

.....

and

I'm becoming the

## Best Version

of myself with

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# INDEX

GRADE-8



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# I AM PROGRESSING

**(Tick mark the columns after achieving the Learning Milestones)**

| TOPIC | 1st Learning | Exercise Solving | 1st Revision | 2nd Revision |
|---|---|---|---|---|
| Rational Numbers | | | | |
| Squares & Square Roots | | | | |
| Cubes & Cube Roots | | | | |
| Exponents & Powers | | | | |
| Linear Equations in One Variable | | | | |
| Algebraic Expressions, Identities & Factorisation | | | | |
| Playing With Numbers | | | | |
| Introduction to Graphs & Data Handling | | | | |

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# MATHS

## SAMPLE THEORY

# CHAPTER 8

# INTRODUCTION TO GRAPHS & DATA HANDLING

## INTRODUCTION

Data means collecting information, generally in numeric form.

**Example:** Runs scored by a footballer in his last 12 matches are 1, 2, 2, 3, 5, 6, 3, 1, 0, 4, 4, 4.

**Raw Data**

The data in the form in which it was collected is Raw Data.

**Observation**

Each numerical value collected to form data is known as observation.

**Frequency**

The frequency of any particular observation is the number of times it occurs.

## FREQUENCY DISTRIBUTION TABLE

We have already studied in previous grades how the data can be organised in the form of a table using tally marks. Such a table is also known as the **Frequency Distribution Table**.

The number of plants grown by 15 students is 3, 4, 6, 7, 8, 3, 4, 6, 7, 1, 5, 8, 8, 4, 9. The data given can be arranged in the Frequency Distribution Table as follows:

**FREQUENCY DISTRIBUTION TABLE**

| Number of Plants | Tally Marks | Frequency |
|---|---|---|
| 1 | \| | 1 |
| 3 | \|\| | 2 |
| 4 | \|\|\| | 3 |
| 5 | \| | 1 |
| 6 | \|\| | 2 |
| 7 | \|\| | 2 |
| 8 | \|\|\| | 3 |
| 9 | \| | 1 |
| **Total** | | **15** |



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## REPRESENTATIVE VALUES/MEASURES OF CENTRAL TENDENCY

Sometimes the study of large data becomes difficult, so to study the data, some values are required that represent the data based on which important results can be obtained easily. Such values which represent the data are known as the representative values.

Here we will be studying some important representative values.

### Range

The difference between the highest and lowest observation of the data is known as the Range of the data.

$$\text{Range} = \text{Highest Observation} - \text{Lowest Observation}$$

### Mean

Finding Arithmetic Mean is the same as finding the average of the data collected. The average, arithmetic mean, or simply mean can be found as follows:

$$\text{Mean } (\bar{x}) = \frac{\text{Sum of the Observations}}{\text{Number of the Observations}}$$

### Median

The Median of the data collected is the middlemost observation when the data is arranged in the ascending/descending order.

Let 'n' be the total number of observations.

**If n is odd:**

$$\text{Median} = \text{Value of } \left(\frac{n+1}{2}\right)^{th} \text{ observation}$$

**If n is even:**

$$\text{Median} = \frac{1}{2}\left[\left(\frac{n}{2}\right)^{th} \text{observation} + \left(\frac{n}{2}+1\right)^{th} \text{observation}\right]$$

### Mode

The Mode of the data is the observation that occurs the maximum number of times.

**NOTE** **Empirical Formula:** Mode = 3 Median − 2 Mean



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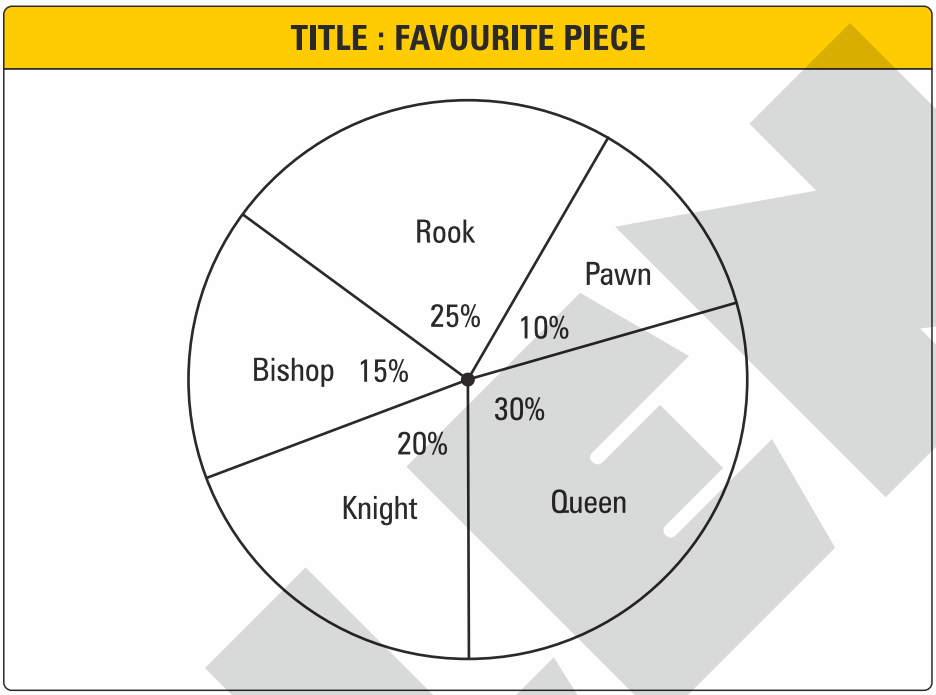
## SAMPLE EXERCISE

**Directions:** Solve the following multiple choice questions by choosing the most appropriate option.

**Directions (Q.1 to Q.3):** Based on the given pie chart, that shows the percentage of 840 people on the basis of their favourite piece in the chess game, answer the following questions:




**1. Find the number of people who like the piece that only moves in the straight line (both horizontal & vertical).**

(1) 504 (2) 252

(3) 210 (4) 126

**2. How many more people are there who prefer any piece other than Rook than the number of people who like Rook ?**

(1) 420 (2) 630

(3) 252 (4) 588

**3. Find the difference between the number of people who like the one that is the most favourite piece and the number of people who like the least favourite piece.**

(1) 252 (2) 168

(3) 126 (4) 84



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**Directions (Q. 4 to Q. 6):** Study the following frequency distribution table and choose the appropriate answer.

| Class Intervals | Frequency |
|---|---|
| 0-8 | 5 |
| 8-16 | 3 |
| 16-24 | 9 |
| 24-32 | 13 |
| 32-40 | 16 |
| 40-48 | 6 |
| 48-56 | 2 |
| 56-64 | 24 |
| 64-72 | 8 |
| 72-80 | 14 |

4. **Which of the following class interval have the second-highest frequency ?**

(1) 16-24 (2) 72-80 (3) 56-64 (4) 32-40

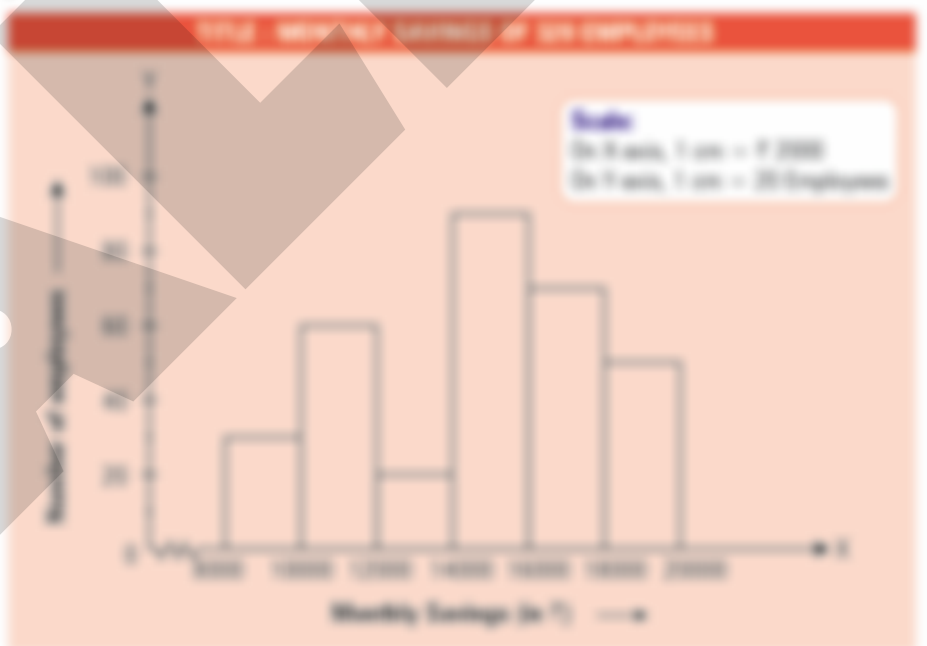
5. **Find the difference between the upper and lower limit of the class interval which has the maximum frequency.**

(1) 9 (2) 8 (3) 7 (4) None of these

6. **Find the mean of the upper limit of class having the lowest frequency and the lower limit of class having the highest frequency.**

(1) 112 (2) 52 (3) 60 (4) 56

**Directions (Q. 7 to Q. 9):** Based on the given histogram, that shows the monthly saving of 320 employees in a company, answer the following questions:



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