



# Vidya Bhawan, Balika Vidyapith

Shakti Utthan Ashram, Lakhisarai - 811311 (Bihar)

Class: - 7th

Date: 13/06/2021

Subject: - Mathematics

## Percentages

### Percentages

- Percentages are ratios expressed as a fraction of 100.
- Percentages are represented by the symbol '%'.  
Example:  $20/100=20\%$  and  $50/100=50\%$ .

### Comparing percentages when denominator is not 100

- When a ratio is not expressed in fraction of 100, then convert the fraction to an equivalent fraction with denominator 100.
- Example: Consider a fraction  $3/5$ . Multiply the numerator and denominator by 20.  
 $\Rightarrow 3 \times 20 / 5 \times 20 = 60 / 100 = 60\%$

### Converting fractions/decimals to percentages

- **Converting Decimals to Percentages**

Given decimal: 0.44

$$0.44 = 44/100 = 44/100 \times 100\% = 44\%$$

- **Converting Fractions to Percentages**

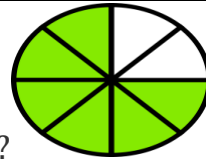
Given fraction:  $3/5 \times 100\% = 3 \times 20\% = 60$

### Converting percentages to fractions/decimals

- $0.25 = 25/100 = 1/4$
- $0.225 = 225/1000 = 9/40$

### Estimation using percentages

- Estimation can be done using percentages.



- Example: What percentage of the given circle is shaded?

Solution: The given circle consists of 8 regions, out of which 6 regions are shaded.

So, the percentage of shaded regions will be  $\frac{6}{8} \times 100 = \frac{3}{4} \times 100 = 75\%$ .

### Interpreting percentage into usable data

- Percentages can be interpreted into useful data.
- Examples:
  - (i) 40% of Raghav's clothes are not washed.  
 $\Rightarrow$  Raghav's 40 clothes out of 100 clothes are not washed.
  - (ii) 30 % of students in class are infected by fever.  
 $\Rightarrow$  Out of 100 students in a class, 30 students are infected by fever.

### Converting percentage to the form "how many"

- Example: 200 chocolates were distributed among two children: Joe and Tom. Joe got 60% and Tom got 40% of the chocolates. How many chocolates will each get?  
Solution: Total number of chocolates = 200  
Joe got 60% of the chocolates =  $\frac{60}{100} \times 200 = 120$  Tom got 40% of the chocolates  
=  $\frac{40}{100} \times 200$   
  
= 80  $\therefore$  Joe and Tom will get 120 and 80 chocolates, respectively.

### Converting Ratios to percentages

- Ratios can be expressed as percentages to understand certain situations much better.
- Example: 200 chocolates were distributed among two children: James and Jacob. James got 35 and Jacob got 25 of the chocolates. What is the percentage of chocolate that each got?  
Solution: Total number of chocolates = 200  
James got 35 of the chocolates =  $\frac{35}{200} \times 100 = 17.5\%$  of the total chocolates.  
Jacob got 25 of the chocolates =  $\frac{25}{200} \times 100 = 12.5\%$  of the total chocolates.