# PAKISTAN SCHOOL, KINGDOM OF BAHRAIN

# E – SUPPORT AND LEARNING MATERIAL

**SUBJECT: MATHEMATICS** **Grade: 7**

## Chapter: 2 Approximation

### Approximation:

An approximation is anything that is similar, but not exactly equal, to something else. A number can be approximated by rounding. A calculation can be approximated by rounding the values within it before performing the operations.

### Rounding off :

Rounding means making a number simpler but keeping its value close to what it was.

The result is less accurate, but easier to use.

**Rounding numbers to the nearest 10, 100, 1,000**

To approximate to the nearest ten, look at the digit in the tens column.

To approximate to the nearest hundred, look at the digit in the hundreds column.

For the nearest thousand, look at the digit in the thousands column.

Then do the following:

- draw a vertical line to the right of the place value digit that is required
- look at the next digit
- if it's 5 or more, increase the previous digit by one
- if it's 4 or less, keep the previous digit the same
- Fill any spaces to the right of the line with zeros.

**Example:**

Round off the following number to the nearest 10

a) 275

2 7 (5) = 2 8 0 ( to the nearest 10)

**Step1:** Underline the digit in the tens place.

**Step 2:** Circle the next digit on its right digit on its right. If it is 5 or more, add 1 to the digit in the tens place.

**Step 3:** Put a zero in the ones place as a holder.

**Exercise Questions:**

**Q 1**.Round off 698352 to the nearest

(a)100 (b) 1000. (c) 10,000.

**Solution:**

(a) 698 352 = 698 400 (to the nearest 100)

(b) 698 352 = 698 000 (to the nearest 1000)

(c) 698 352 = 700 000 (to the nearest 10 000)

**Q2.** Correct 45.7395 to

(a) 1 decimal place,
(b) The nearest whole number,
(c) 3 decimal places.

**Solution:**

(a) 45.7395 = 45.7 (to 1 decimal place)

(b) 45.7395 = 46 (to the nearest whole number)

(c) 45.7395 = 45.740 (to 3 decimal place)

**Q3.** The dimension of the rectangular plot of land is 28.3m by 53.7m.Find

(i)the perimeter of the land, correct to the nearest 10m,

(ii) The area of grass needed to fill up the entire plot of land, correct to the nearest $100m^2$.

## Solution:

(i) Perimeter of land = 2(28.3 + 53.7) = 2(82)

= 160 m (to the nearest 10 m)

(ii) Area of grass needed to fill up the entire plot of land= 28.3 × 53.7

= 1519.71 m2

= 1500 $m^2$ (to the nearest 100 $m^2$)

**Homework:**

Solve question number 5 and 6.

**Significant Figures:**

Significant figures are used to reflect the degree of accuracy. A number is more accurate when it is given to a greater number of significant figures.

**Five rules to identify digits which are significant**

**Rule 1:** All **non-zero** digits are significant.

**Rule 2:** All **zeros between non-zero digits** are significant.

**Rule 3:** In a decimal, all **zeros after a non-zero digit** are significant.

**Rule 4:** In a decimal, all **zeros before a non-zero digit** are not significant.

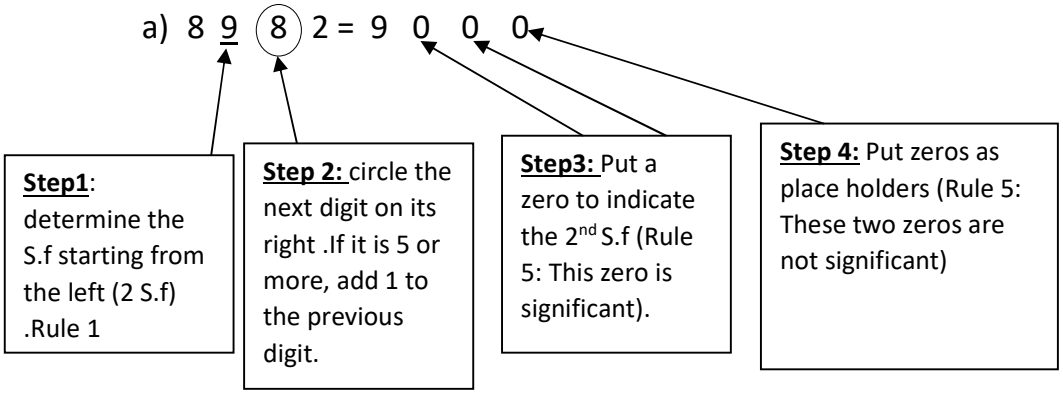
**Rule 5:** In whole numbers, the zeros at the end **may or may not** be significant. It depends on how the numbers are approximated.

**Example**: Round off the following to the number of significant figures as given in brackets.

a) 8982(2 Significant figure)

## Solution:

a) 8 9 8 2 = 9 0 0 0




**Exercise Question:**

Q1.State the number of significant figures in each of the following.

a)39018

**Solution:** The number 39 018 has 5 significant figures.

Q2.Round off each of the following to the number of significant figures as given in brackets

(b)503.88(4 S.f)

**Solution:** 503.88 = 503.9 (to 4 s.f.)

**Home work:**

Solve remaining parts of question 1 and 2, solve question no.5 and 6.