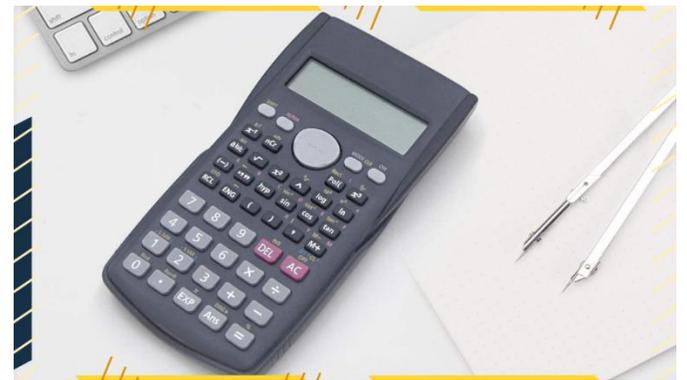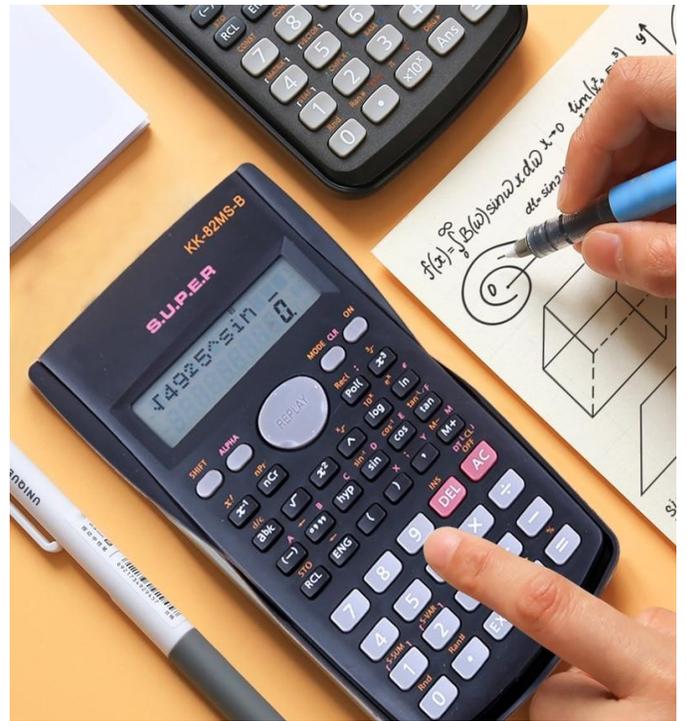# GRADE 9

MATHEMATICS

THE

CALCULATOR

Reading

Materials

Mrs. U.V.S.S.Gunathilaka

Kg/Dehiowita National School, Dehiowita
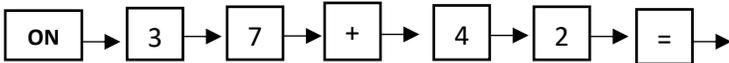
The Calculator

Performing calculations using a calculator.

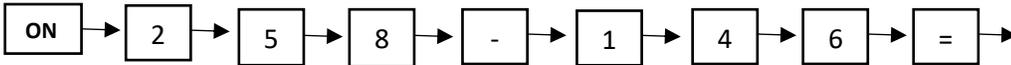❖ **When performing calculations using a calculator, the keys need to be pressed in a specific order.**

Example 1

The order in which the keys need to be pressed to obtain the value of 37 + 42 is the following.
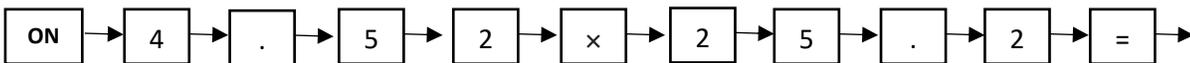
| ON | → | 3 | → | 7 | → | + | → | 4 | → | 2 | → | = | → |

Example 2

The order in which the keys need to be pressed to obtain the value of 258 - 146 is the following.

| ON | → | 2 | → | 5 | → | 8 | → | - | → | 1 | → | 4 | → | 6 | → | = | → |

Example 3

The order in which the keys need to be pressed to obtain the value of 4.52 × 25.2 is the following.

| ON | → | 4 | → | . | → | 5 | → | 2 | → | × | → | 2 | → | 5 | → | . | → | 2 | → | = | → |

Example 4

The order in which the keys need to be pressed to obtain the value of 8.4 ÷ 6 is the following.

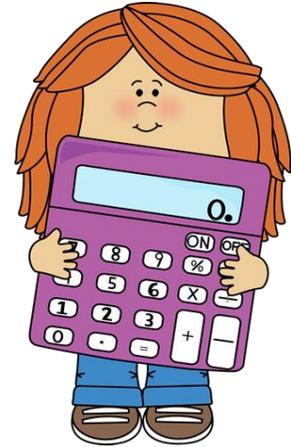| ON | → | 8 | → | . | → | 4 | → | ÷ | → | 6 | → | = | → |
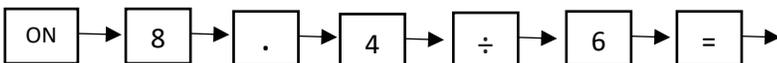
✓ To switch the calculator off after a calculation is done, press the OFF key. If you wish to start another calculation without switching the calculator off, use the AC key to clear the screen and reset the functions .

Exercise 1

Find the answer of given calculations by using a calculator.

    i.   46 + 274

    ii.   330 − 85

    iii.   842 × 95

    iv.   3690 ÷ 30

    v.   2.54 ÷ 6.33

    vi.   450 − 17.3

    vii. 78 × 60

    viii. 4812 ÷ 4

## Performing calculations using an ordinary calculator or a scientific calculator.

Let us consider how simplifications are done using a calculator when more than one operation is involved.

In simplifying 9 + 6 ÷ 3 using an ordinary calculator, when the keys are pressed in the order.

the operations are performed in the order that they have been entered and 5 is obtained as the answer.

 That is, a wrong answer is obtained by 9 + 6 ÷ 3 = 15 ÷ 3 = 5.
(This is wrong according to the "BODMAS Rule".)

ON → 9 → + → 6 → ÷ → 3 →
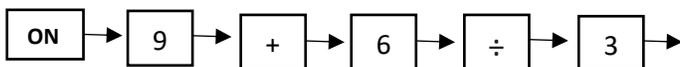
When we enter the above data in a scientific calculator in the same order, the operations are performed according to the accepted order of performing mathematical operations and the answer 11 is obtain by performing the operations as follows: 9 + 6 ÷ 3 = 9+ 2 = 11

Using the % key in scientific calculator.

The % key is used to calculate percentages. Both the symbols = and % appear on the same key in most calculators. To activate the % key, press the SHIFT key and then the = key.
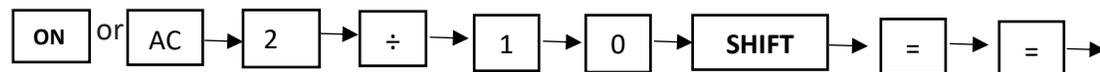
Example 1

The keys of the calculator need to be pressed in the following order to find 25% of 680.

| ON or AC | → | 6 | → | 8 | → | 0 | → | × | → | 2 | → | 5 | → | SHIFT | → | = | → | = |
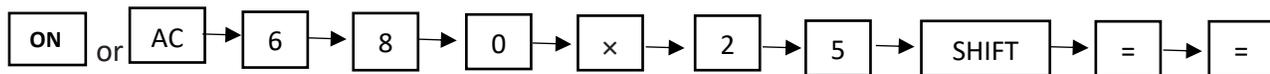
Example 2

Let us express $\frac{2}{10}$ as a percentage.

| ON or AC | → | 2 | → | ÷ | → | 1 | → | 0 | → | SHIFT | → | = | → | = | → |

Exercise 2

Simplify using a scientific calculator. Indicate the order in which the keys need to be pressed to obtain the correct answer.

  i.   10% of Rs. 5000

 ii.   5% of 60 minutes

iii.   25% of 1000m

 iv.   3% of 6000l

  v.   75% of Rs. 25000

**Use a scientific calculator to find the solution to each of the following problems**.

i.   A book which was produced at a cost of Rs 250 was sold at a profit of 15%. What was the profit?

ii.   Kumara's monthly salary is Rs 25 000. Of this amount, he deposits Rs 10000 in a savings account. What percentage of his salary does he save?

iii. Of the 1500 students in a certain school, 180 learn Tamil. Express the number of students who learn Tamil as a percentage of the total number of students in the school.

Performing calculations using the x^2 key.

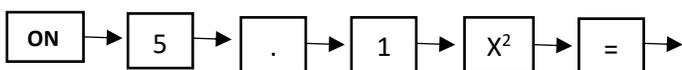✓ To find the value of powers with index two such as 2^2, 5^2 and 3.21^2 we use $\boxed{x^2}$ the key.

Example 1

The order in which the keys need to be pressed to obtain the value of 4^2 is the following.

$\boxed{\text{ON}} \rightarrow \boxed{4} \rightarrow \boxed{x^2} \rightarrow \boxed{=} \rightarrow$
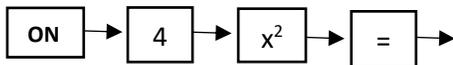
Example 2

The order in which the keys need to be pressed to obtain the value of 5.1^2 is the following.

$\boxed{\text{ON}} \rightarrow \boxed{5} \rightarrow \boxed{.} \rightarrow \boxed{1} \rightarrow \boxed{X^2} \rightarrow \boxed{=} \rightarrow$

Exercise 3

1. Find the value of each of the following powers using a scientific calculator.

   i. 2^2

   ii. 6^2

   iii. 12^2

   iv. 15^2

   v. 5^2

   vi. 9^2

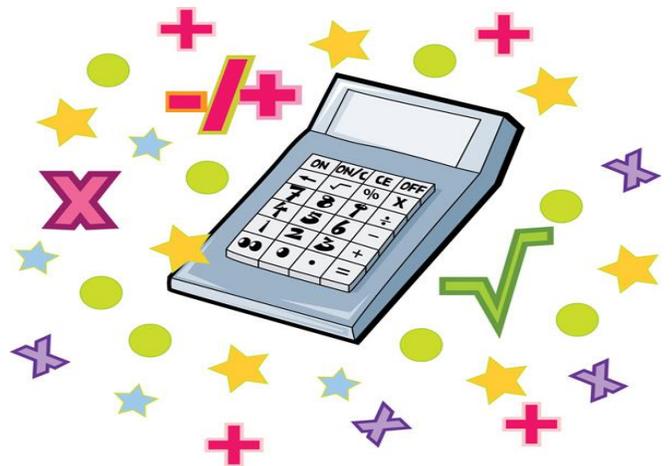   vii. 18^2

   viii. 22^2

2. Find the value of each of the following powers using a scientific calculator. Indicate the order in which the keys of the calculator need to be pressed to obtain the correct answer.

   i. 4×6^2

   ii. $6^2 \times 3^2$

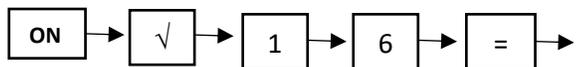   iii. $10^2 - 3^2$

   iv. 4.5^2

Performing calculations using the $\sqrt{}$ key in a scientific

To find the value of the square root of a number, we use the $\sqrt{}$ key.

Example 1

The order in which the keys of a scientific calculator need to be pressed to find the value of √16 is the following.
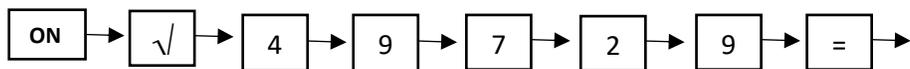
| ON | → | √ | → | 1 | → | 6 | → | = | → |

Example 2

The order in which the keys of a scientific calculator need to be pressed to find the value of $\sqrt{49729}$ is the following.

| ON | → | √ | → | 4 | → | 9 | → | 7 | → | 2 | → | 9 | → | = | → |

Exercise 4

1. Find the square root of each of the following numbers using a scientific calculator.

i.   81

ii.   225

iii. 1681

iv.   5625

2. Find the square root of each of the following numbers using a scientific calculator. Indicate the order in which the keys of the calculator need to be pressed to obtain the correct answer.

i. $\sqrt{25}$

ii. $\sqrt{49}$

iii. $\sqrt{225}$

iv. $\sqrt{9}$

3. The area of the given square is 900m^2 . Find the side length of this square.

900m²