الإدارة المركزية للتعليم العام

Science development office

Physics

Second Secondary Grade

2026

Home Work

Week 1

Name: .....

Class: .....

School: .....

إعـــداد

محمد عنتر

مراجعة

مجدي فتحي – عمرو مالي

مكتب مستشار العلوم

عبدالله مصطفى – سعيد محمد

إشراف

د/ عزيزة رجب خليفة

مستشار العلـــــوم

إشراف عام

د. هالة عبدالسلام

رئيس الإدارة المركزية للتعليم العام

Measurement - types of physical quantities - the International System of Units, and standard units:

First: Choose the correct answer:

1. Which of the following is a fundamental physical quantity?

- A) The speed of the Moon revolving around the Earth
- B) The radius of a hydrogen atom
- C) The air pressure inside a balloon
- D) The density of water

2. Which of the following is a derived physical quantity?

- A) The mass of a container filled with oil
- B) The time of the Earth's rotation around itself
- C) The distance between Cairo and Minya
- D) The weight of a small elephant

3. The unit of length in the Gaussian system is:

- A) Foot
- B) Kilometer
- C) Meter
- D) Centimeter

4. A Vernier caliper is used to measure:

- A) Length
- B) Mass
- C) Speed
- D) Time

5. If speed (v) = distance (d) / time (t), what is the unit of speed in the British system?

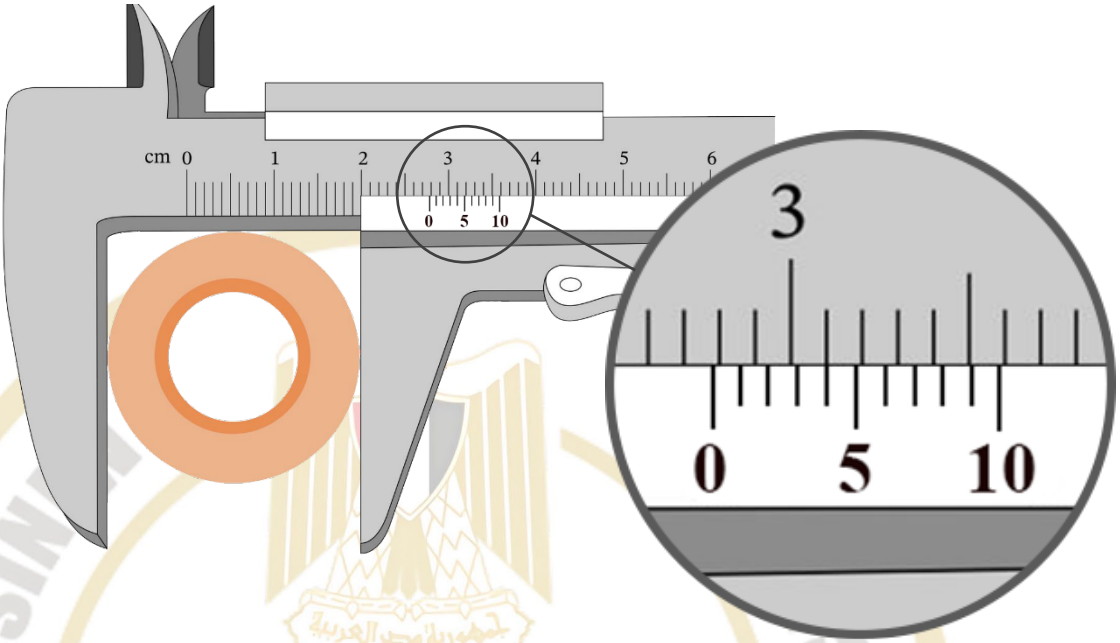
- A) Meter/second
- B) Centimeter/second
- C) Meter/hour
- D) Foot/second

6. The solid angle in the International System is measured in:

- A) Radian
- B) Steradian
- C) Kelvin
- D) Ampere

7. In the following figure, a student used a vernier caliper to measure the diameter of a small metal disc. According to the caliper reading, the diameter of the disc is:

- A) 27.4 cm
- B) 24.7 mm
- C) 27.4 mm
- D) 24.7 cm



8. When measuring the mass of a gold ring, it is preferable to use:

- A) Roman balance
- B) Digital scale
- C) Hourglass
- D) Measuring tape

9. The appropriate tool to measure swimming race times is:

- A) Measuring tape
- B) Stopwatch
- C) Hourglass
- D) Digital scale

10. The gram is the unit of mass in the _____ system.

- A) French
- B) International
- C) British
- D) Metric

11. The second is the unit of time in the _____ system.

- A) French
- B) Metric
- C) British
- D) All of the above

12. The pound is the unit of mass in the _____ system.

- A) French
- B) International
- C) British
- D) Metric

13. The most accurate clock used for measuring time is the:

- A) Hourglass
- B) Atomic clock
- C) Pendulum clock
- D) Stopwatch

Second: Essay Questions:

14. Complete the following table with suitable physical quantities or units of measurement:

Physical quantity	Gaussian system	Metric sysrem	British system
----------	second	……	----------
……	----------	----------	Pound
----------	……	meter	----------

15- Compare between standard meter, standard kilogram and second

Point of compariso	Definition	Physical quantity
Standard meter	---------- ----------	
Standard kilogram	---------- ----------	
Second	---------- ----------	

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Weekly Assessment

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The measurement - Types of physical quantities – The International System of Units - Standard units

1- What are the main elements of measurement?

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2- Compare between fundamental (basic) and derived physical quantities.

Point of comparison	Basic physical quantities	Derived physical quantities
Definition	....	....
Examples	....	....

3- The speed of the Earth's rotation around itself is not considered one of the basic physical quantities. Explain why.

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4- Mention some of the measuring tools used to measure length, mass, and time.

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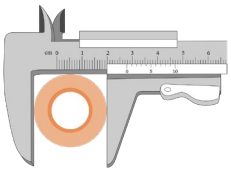
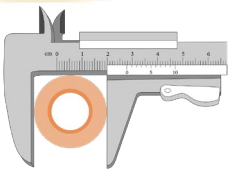
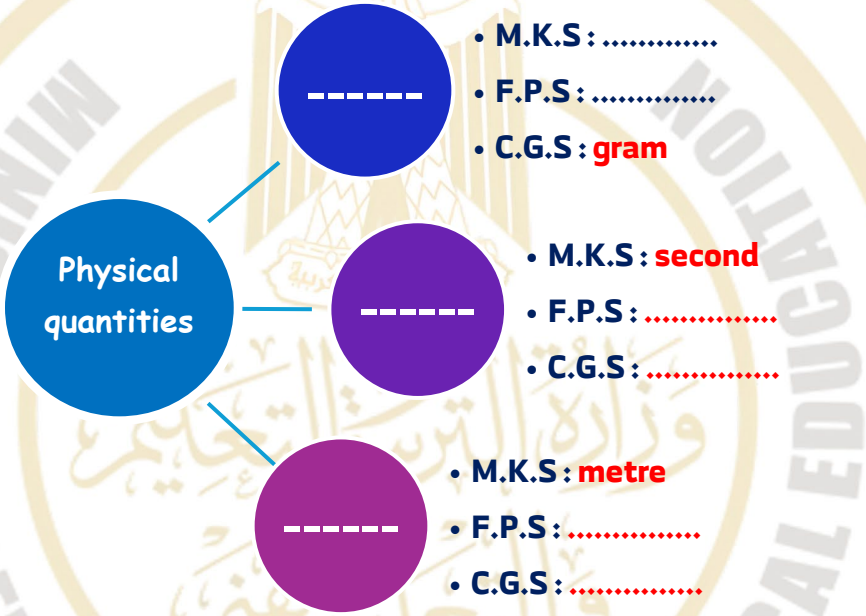
5- Choose the appropriate tool from the following tools to measure physical quantities in the following table:

No	Physical quantity	Suitable measuring tool			
1	Width of homework Notebook				
		A	B	C	D
2	Length of the classroom door in your school				
		A	B	C	D
3	The mass of a large stone				
		A	B	C	D
4	Diameter of a ping-pong ball				
		A	B	C	D

5	Diameter of a thin wire				
		A	B	C	D

6- Complete the following table with the appropriate information:



7- What is the unit of measurement for electric current intensity and luminous intensity in the International System of Units?

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8- If the physical quantity (X) = $\frac{\text{mass (m)}}{\text{time (t)}}$, Deduce the unit of measurement for the quantity (X) in the French system.

9- If the speed (v) = $\frac{\text{distance (d)}}{\text{time (t)}}$, and the kinetic energy:

(KE) = $\frac{1}{2}$ mass (m) × squared speed (v^2), Deduce the unit of measurement for kinetic energy in the British system.

10- Complete the following table with the appropriate word:

Physical quantity	It's unit of measurement in the International System	The appropriate measuring tool
Mass of a golden ring	----------	----------
The time taken by the runner to cover the distance in the race	----------	----------
The length of a room in the house	----------	----------

11- Complete the following physical quantities chart with the appropriate units of measurement according to the International System of Units (SI):

12- Why was glass not used instead of the platinum-iridium alloy as a standard unit for measuring length.

13- Give reasons why the atomic clock is preferred for measuring time.

14- Complete:

If the average solar day = 24 hours, then the minute is equal to …… of the average solar day.

15- Why are scientists searching for the most accurate standard for measuring physical quantities?