

## Part 1: Units

- To communicate results, it is helpful to use units that everyone understands.
- The System International SI uses seven base quantities, which are shown in the table. These base quantities were originally defined in terms of direct measurements. Other units, called derived units, are created by combining the base units in various ways

Quantity	Base unit	Symbol
length	meter	
Time	second	
temperature	Kelvin	
luminous intensity or the brightness of an object	candela	
the amount of substance	mole	
Electric current	Ampere	
Mass	kilogram	

## Test yourself

**1- Which of the following is a base unit in the International System of Units (SI)?**

- A. Meter
- B. Newton
- C. Joule
- D. Watt

**2- Which of the following is a derived unit in the SI system?**

- A. Second
- B. Kilogram
- C. Ampere
- D. Pascal

**3- What is the SI unit of velocity ?**

- A. m/s
- B. m/s<sup>2</sup>
- C. m/s<sup>3</sup>
- D. m

**4- What is the SI unit of acceleration ?**

- A. m/s
- B. m/s<sup>2</sup>
- C. m/s<sup>3</sup>
- D. m

## Part 2: Significant figures

Significant figures: The digits of a number that can express to a given degree of accuracy

### Rules of counting Significant figures.

- 1- All non-zero digits (1,2,3,4,5,6,7,8,9) are significant. (235) (3 significant figures)
- 2- Trailing zeros if there is a decimal point are significant. (0.02500) (4 significant figures)
- 3- Any zeros contained between non-zero-digit are significant. (30026) (5 significant figures)

### Test yourself

Determine the number of significant figures in each of the following measurements

- 0.00234 m : .....
- 1.60 s : .....
- 3470 Km : .....
- 1.304 cm: .....

## Part 3: Scalar and vector quantities

Scalar quantity	Vector quantity
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\_\_\_\_\_ : it is the quantity that has only magnitude without direction, it is always positive.

\_\_\_\_\_ : it is the quantity that has both magnitude and direction, it could be positive or negative.

### Test yourself

Classify the following quantities into Scalar and Vector:

Time - Velocity - Acceleration - Distance - Displacement - Mass - Force

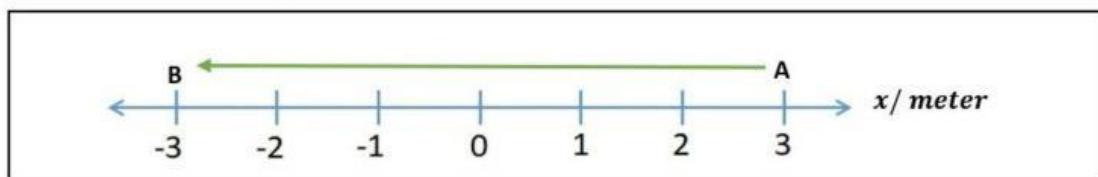
Scalar quantities	Vector quantities

#### Part 4: Scalar and vector quantities

Quantity	The definition	Type	Symbol	Formula
Distance			$d$	
Displacement			$\Delta x$	

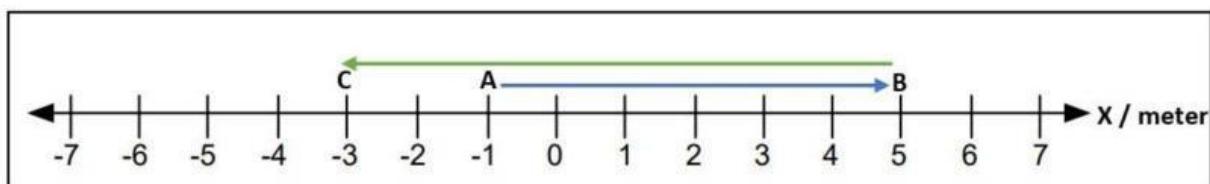
#### Test yourself

1- An object moves from point (A) to point (B) as shown down. find the distance and the displacement that the object moves



Distance	Displacement

2- An object moves from point A to point B, then he moves from point B to point C. Determine the distance and displacement that the object moves.



Distance	Displacement