

تم تحميل هذا الملف من موقع المناهج الإماراتية



## ملخص بدون أمثلة وفق الهيكل الوزاري منهج انسابير

موقع المناهج ← المناهج الإماراتية ← الصف التاسع العام ← علوم ← الفصل الأول ← ملخصات وتقارير ← الملف

تاريخ إضافة الملف على موقع المناهج: 10:16:11 2024-11-10

ملفات اكتب للمعلم اكتب للطالب الاختبارات الكترونية الاختبارات ا حلول ا عروض بوربوينت ا أوراق عمل  
منهج انجليزي ا ملخصات وتقارير ا مذكرات وبنوك ا الامتحان النهائي للمدرس

المزيد من مادة  
علوم:

## التواصل الاجتماعي بحسب الصف التاسع العام



صفحة المناهج  
الإماراتية على  
فيسبوك

الرياضيات

اللغة الانجليزية

اللغة العربية

التربية الاسلامية

المواد على تلغرام

## المزيد من الملفات بحسب الصف التاسع العام والمادة علوم في الفصل الأول

الهيكل الوزاري الجديد المسار العام منهج بريدج

1

أسئلة مراجعة نهائية منهج انسابير

2

عرض بوربوينت درس قصة مادتين كيميائيتين

3

عرض بوربوينت درس تغيرات المادة

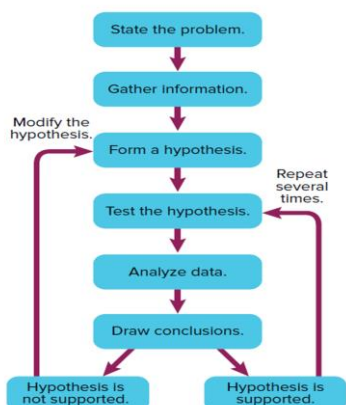
4

أسئلة الامتحان النهائي الورقي بريدج

5

## Summary as per Eot

### 1. The scientific method



### 2. Base quantities and their units

Base Quantity	Base Unit	Symbol
Length	meter	m
Mass	kilogram	kg
Time	second	s
Temperature	kelvin	K
Amount of a substance	mole	mol
Electric current	ampere	A
Luminous intensity	candela	cd

### 3. Significant figures

**Rule 1: Non-zero digits** are always significant. **123456789**

**Rule 2: "sandwich zeros"** – any zeros between two significant digits are significant.

**1002** , **123.0048** , **2.004**

**Rule 3: Trailing zeros** are significant **if** there is a decimal point.

**43.000** , **23.2300** , **1000.** **320.000** , **1000**

**Rule 4: leading zeros** are **not significant**. **0.02** , **0.22** , **0.0045**

**Rule 5: in scientific notation**, leave the  $(10^{\wedge})$  and look at the number only and apply the rules normally  **$2.34 \times 10^{-9}$**  ,  **$1000 \times 10^5$**  ,  **$0.005 \times 10^8$**   **$0.0500 \times 10^7$**

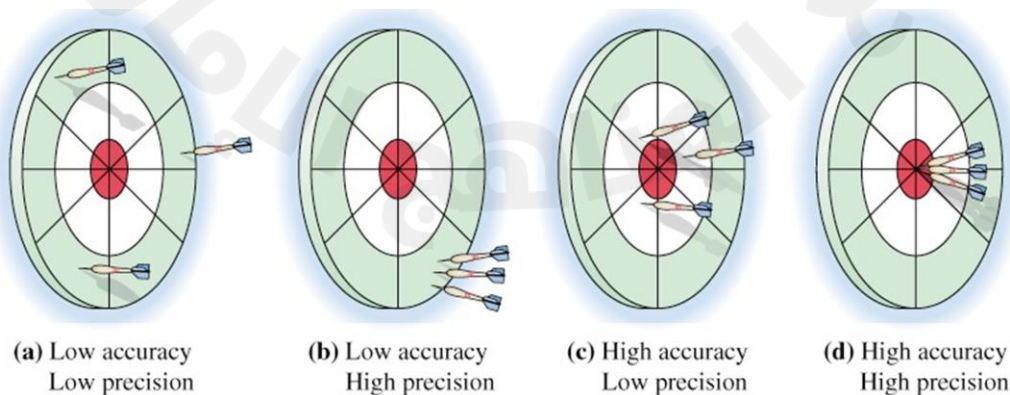
### 4. Rounding results

- Add and subtract : answers will have the least number of decimal places  
 $1.871 + 3.2214 = 5.002$
- Multiply and divide: answers will have the least number of significant figures.  
 $2.17 \times 1.179 = 2.56$

### 4. Rounding results

Accuracy : describes how close the experimental measurements are to the real value

Precision : how close the experimental measurements to each other.



## Summary as per Eot

### 4. Rounding results

The temperature inside a fridge is 38 F  
3 thermometers (A, B, C) were tested to measure the temperature  
Judge the accuracy and precision of each thermometer

Temperatures gained from sensor A testing, degrees F	39.4
	48.2
	28.1
	46.3
	34.5

inaccurate imprecise

Temperatures gained from sensor B testing, degrees F	37.8
	38.3
	38.1
	37.4
	38.0

accurate Precise

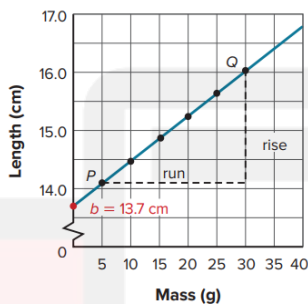
Temperatures gained from sensor C testing, degrees F	49.6
	49.5
	49.7
	49.9
	49.9

inaccurate Precise

### 5. Dependent and independent variables

**Independent variable** : quantity **changed** by the scientist during the experiment  
**Dependent variable** : quantity **measured** by the scientist. it **changes with** (depends on) the independent variable

Dependent variable



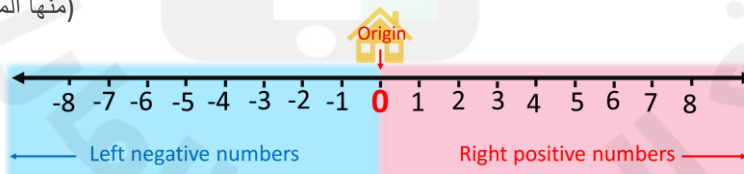
Independent variable

**Independent variable**      **Dependent variable**

Mass Attached to Spring (g)	Length of Spring (cm)
0	13.7
5	14.1
10	14.5
15	14.9
20	15.3
25	15.7
30	16.0
35	16.4

### 6. Coordinate system , position and distance

- Coordinate system** : a system used to describe the location of objects relative to a reference point (origin)
- origin** : is the point at which all variables in a coordinate system have the value zero. (النقطة التي بنقيس منها المسافات والاتجاهات)



- distance (d)(m)** : is the entire length of an object's path, even if the object moves in many directions. طول المسار الكامل الذي قطعه الجسم
- Displacement** : it is a vector quantity that describes the change in position of an object.

$$\Delta x = x_f - x_i$$

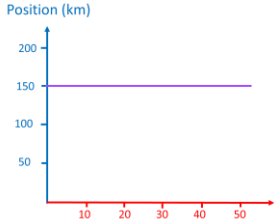
### 7. Scalars and vectors

- Scalar** : a quantity that is just a number without any direction, example: distance , mass , time , temperature , speed , work , energy, pressure
- Vector** : A quantity that has both magnitude and direction. Example: position, displacement, velocity Acceleration, force

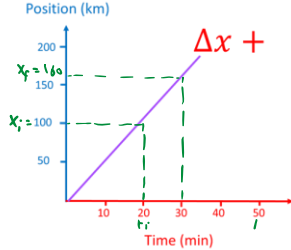
Summery as per Eot

8. Position time graphs

The object is at rest if the line is straight and it's displacement  $\Delta x$  is zero

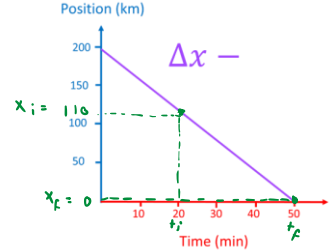


The object is moving with constant speed to the right (or up) if the line is an incline and its displacement  $\Delta x$  is positive



what is the displacement of the object between 20 and 30 seconds  
 $\Delta x = x_f - x_i$   
 $= 160 - 100 = 60 \text{ m}$

The object is moving with constant speed to the left (or down) if the line is a decline, and its displacement  $\Delta x$  is negative.

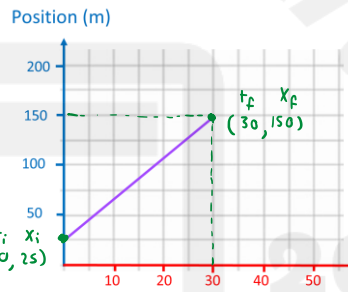


what is the displacement of the object between 20 and 50 seconds  
 $\Delta x = x_f - x_i$   
 $= 0 - 110 = -110 \text{ m}$

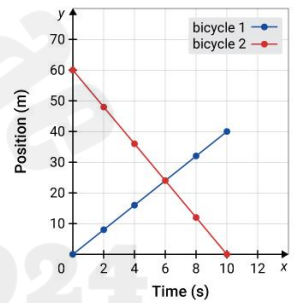
The **steeper** the line in the position-time graph, the **faster** the object.

In a position-time graph, The slope of the line is the velocity

$$\bar{v} = \frac{\Delta x}{\Delta t} \longrightarrow \bar{v} = \frac{x_f - x_i}{t_f - t_i}$$



what's the Velocity of the object?  
 $\bar{v} = \frac{x_f - x_i}{t_f - t_i} = \frac{150 - 25}{30 - 0}$   
 $\bar{v} = 4.16 \text{ m/s}$



If the lines cross, the objects **meet at that point in time**

the objects met at  $t = 6 \text{ s}$   
 at  $x = 25 \text{ m}$

9. Motion with constant velocity equation

Final position  $x_f = \bar{v}t + x_i$  Initial position

الموقع النهائي meter (m) الموقع الابتدائي m

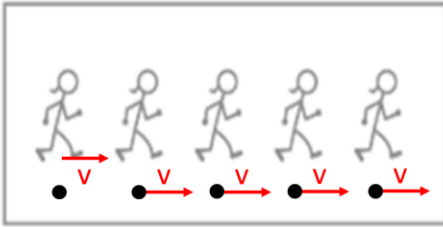
Velocity السرعة (m/s) time الزمن s

Summary as per Eot

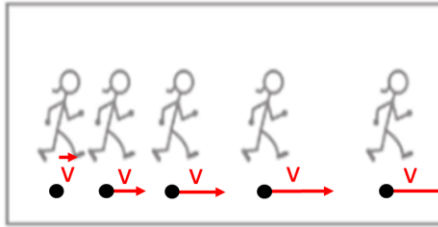
10. Uniform and non uniform motion

An object's motion can be **uniform** or **nonuniform**.

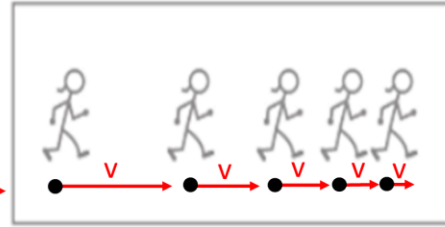
**Nonuniform** motion means that the object is experiencing **a change in its velocity**



**Uniform motion**  
Object moving at constant speed



**nonuniform motion**  
Object accelerating



**nonuniform motion**  
Object decelerating

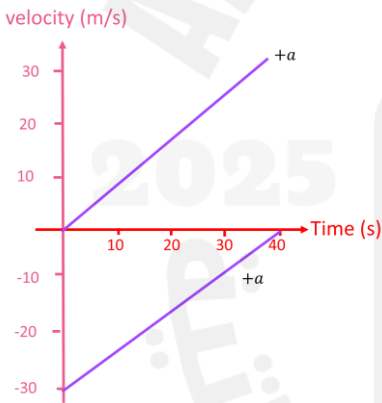
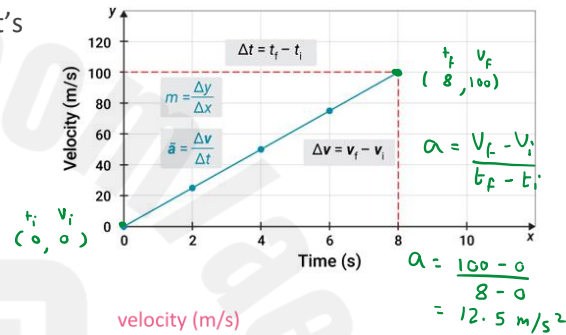
11. Average acceleration

**Average Acceleration (a) (m/s<sup>2</sup>)**: the rate of change of an object's velocity.

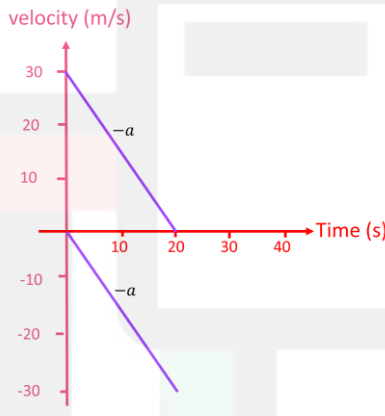
$$\bar{a} = \frac{\Delta v}{\Delta t} \rightarrow \bar{a} = \frac{v_f - v_i}{t_f - t_i}$$

*v<sub>f</sub>: the final velocity*  
*v<sub>i</sub>: the initial velocity*

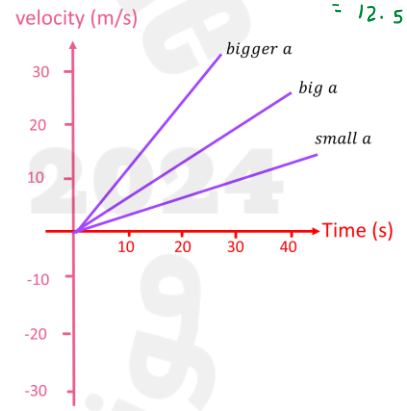
Acceleration is equal to the **slope** in the **velocity-time** graph



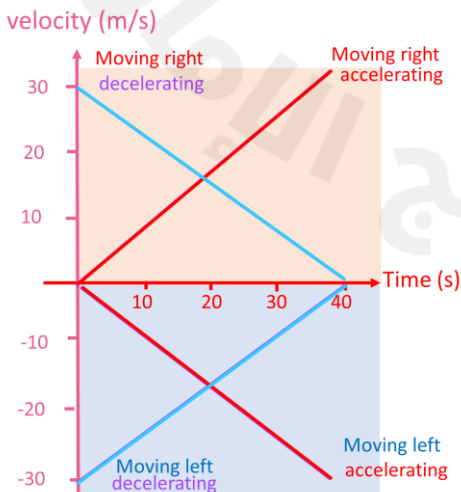
Incline → Positive acceleration



decline → negative acceleration



More slope → more acceleration

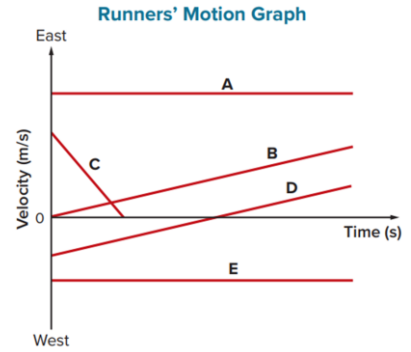


نصيحة :  
إذا كان الخط فوق محور الزمن السرعة موجبة واتجاه الحركة لليمين (أو الأعلى)  
إذا كان الخط تحت محور الزمن السرعة سالبة واتجاه الحركة لليسار (أو الأسفل)

نصيحة :  
إذا كان الخط يبتعد عن الصفر , فإن الجسم يتسارع  
إذا كان الخط يقترب للصفر فإن الجسم يتباطئ

Summery as per Eot

- A : moving at a constant velocity to the right.
- B : accelerating (speeding up) to the right
- C : decelerating (slowing down) to the right
- D : decelerating to the left, stopping , then accelerating to the right.
- E : moving at constant velocity to the left



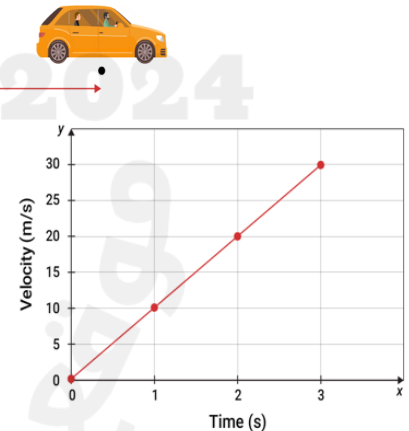
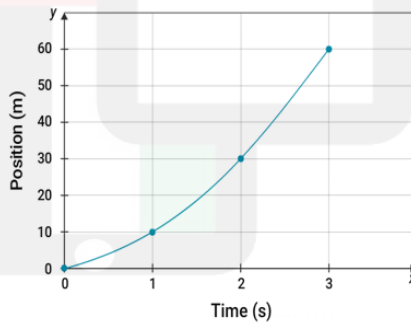
12. Direction of acceleration

Accelerating  $\rightarrow v$  and  $a$  same direction  
Decelerating  $\rightarrow v$  and  $a$  opposite directions

DON'T forget!: Direction of motion always same as direction of velocity.

13. Motion with constant acceleration

- **Motion with constant acceleration:** a type of motion where the object experiences a **constant increase or decrease** in its velocity
- For an object moving with a constant acceleration to the right , the position time graph looks like a curve , while the velocity time graph is an incline



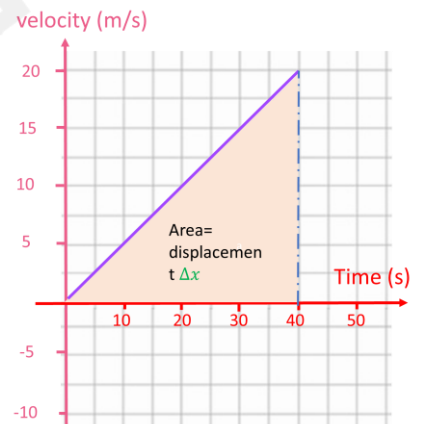
14. displacement from velocity- time graph

To find the displacement from a velocity time graph , we find the **area under the curve**

triangle  $area = \frac{1}{2} \times base \times height$

rectangle  $area = length \times width$

Trapezoid  $area = h \times \frac{a + b}{2}$



## Summery as per Eot

### 13. Motion with constant acceleration equation

$$V_f = V_i + a\Delta t$$

$$V_f^2 = V_i^2 + 2a\Delta x$$

$$\Delta x = V_i\Delta t + \frac{1}{2}a\Delta t^2$$

$$\Delta x = x_f - x_i$$

quantity	اسم الكمية	Symbol الرمز	وحدة القياس Unit
Final velocity	السرعة النهائية	$V_f$	m/s , km/h
Initial velocity	السرعة الابتدائية	$V_i$	m/s , km/h
acceleration	التسارع	$a$	m/s <sup>2</sup>
Time interval	الفترة الزمنية	$\Delta t$	s , min
displacement	الازاحة	$\Delta x$	cm , m , km
Initial position	الموقع الابتدائي	$x_i$	cm , m , km
Final position	الموقع النهائي	$x_f$	cm , m , km

#### To solve problems :

- Write the knowns and unknowns in symbols , sketch the problem.
- Make sure the units are unified. (one unit for distance and one unit for time)
- Choose the suitable equation
  - The equation must have the unknown
  - The other quantities in the equation must be known.
- Substitute and solve for the unknown.

#### Key words and their meanings :

"slows" → acceleration opposite sign of velocity

"at rest" , " stops" , "stationery" → v = 0 m/s

#### اهم التحويلات most important conversions

$$Km \times 1000 \rightarrow m$$

$$cm \div 100 \rightarrow m$$

$$Km/h \times 0.28 \rightarrow m/s , m/s \times 3.6 \rightarrow Km/h$$

$$min \times 60 \rightarrow s$$

$$hr \times 3600 \rightarrow s$$

$$mm \div 1000 \rightarrow m$$

#### Most important formulas

You may use the following equations	
$\Delta x = x_f - x_i$	$\bar{v} \equiv \frac{\Delta x}{\Delta t} = \frac{x_f - x_i}{t_f - t_i}$
$x = \bar{v}t + x_i$	$\bar{a} \equiv \frac{\Delta v}{\Delta t} = \frac{v_f - v_i}{t_f - t_i}$
$v_f = v_i + \bar{a}\Delta t$	$x_f = x_i + v_i t_f + \frac{1}{2}\bar{a}t_f^2$
$v_f^2 = v_i^2 + 2\bar{a}(x_f - x_i)$	$g = -9.8 \text{ m/s}^2$