

Guide to participation in Mawhoob competition - Science Track

مؤسسة الملك عبدالعزيز ورجاله للموهبة والإبداع
King Abdulaziz & his Companions Foundation for Giftedness & Creativity



دليل المشاركة في مسابقة موهوب تخصص العلوم



mawhiba.org



“ موهبة ... حيث تنتمي ”

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“ موهبة ... حيث تنتمي ”

Prepared by: Saudi science team

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

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Introduction

In line with the Kingdom's determination to achieve vision 2030 objectives that are primarily concerned with transforming into an innovative knowledgeable society and the strategic plans directed to achieve the goals of sustainable national development and given that scientific competitions that are no longer an indispensable luxury, but rather have become an objective equation for excellence and progress in scientific fields. For the reason that it is with the momentum the competition to ascend the podiums, everyone who wants to achieve this must take all the means that allow them not only to access those platforms but to reserve a permanent place on them.

There is no doubt that many countries rely on local competitions as one of the methods for developing and raising the rates of scientific creativity and innovative capabilities and discovering the scientific talents of their students to provide them with the necessary scientific care. That fact has been perceived by the world around us for a long time.

Hungary, for instance, held the first mathematics competition in 1894, i.e. 119 years ago. Whereas more than 79 local competitions are organized at all levels and regions in the United States. Perhaps everyone agrees here that the mobility that these competitions do on all the elements of the educational process goes beyond solely winning a competition, but rather deepens on the positive impact, which aims at raising the professional competencies of teachers and achieving the ambition of our distinguished sons and daughters to obtain ideas that are much deeper than the ones provided by a school curriculum.

The methods of implementing these competitions vary according to the different goals and aspirations of the organizing countries. It is perhaps agreed upon by everyone here that the movement that these competitions make on all elements of the educational process goes beyond just winning a competition, but deepens the positive impact, which is aimed at raising the professional competencies of teachers and achieving the ambition of our distinguished sons and daughters. To get deeper ideas than what the school curriculum offers.

King Abdul Aziz and His Companions Foundation for Giftedness and Creativity "Mawhiba" have always been the forerunner to such challenges. From which it always aims to discover the nation's talents in scientific disciplines, and keen to find different sources to improve the quality of selection.

Along with the National Program for Gifted Students Identification, "Mawhoob" Mathematics Competition And science competition was established to delve deeply in search of these creative national competencies and capabilities to find them early. Allowing us to refine, nurture, and train them for a sufficient period to achieve the standards of participation in the International Olympiad programs.

What is a

It is a scientific competition in mathematics, science, physics, chemistry, biology, and informatics.

Implementing agency for Mawhoob competition

King Abdulaziz & His Companions Foundation for Giftedness and Creativity
"Mawhiba", in cooperation with the Ministry of Education.

Target group

Saudi male and female students from grades six to the 10th grade.

Competition stages:

The competition will take place in two stages:

first: It is carried out remotely and the target is to participate in 15,000 students.

II: It is done in writing**** for students nominated from the first stage at the headquarters specified by the education departments to which the students are affiliated. (Exceptionally done this year remotely as well).

Competition

- 1- Pushing the educational field towards more efforts to develop mathematics and science education.
- 2- Discover the distinguished elements of our male and female students at an early stage to develop their capabilities.
- 3- Discovering distinguished teachers interested in the field of work on Olympic problems.
- 4- Spreading the culture of the Olympiad.
- 5- Raising the spirit of competition between the elements of the educational process.

Competition

The competition targets male and female students who have a passion for the scientific disciplines below, according to the following criteria:

1. The student must be a Saudi national.
2. The student must register in one scientific major only.
3. The student must register in the required specialization according to his grade, provided that the student is in one of the following grades at the beginning of the school year 1442H

Class	Subject					
	Mathematics.	Science	Physics	Chemistry	Biology	Informatics
6th Grade	✓	✓				
7th Grade	✓	✓				✓
8th Grade			✓	✓	✓	✓
9th Grade			✓	✓	✓	✓
10th Grade						✓

4. Complete the competition in its two phases.

Test Instructions

1. The only reference to the subjects of the competition is the mathematics and science syllabus from the Ministry of Education.
2. The student can access the system and take the pilot test directly after receiving the account activation message from the e-learning management system on the e-mail registered in the portal.
3. The test duration is 90 min only.
4. The calculator is allowed to be used in all stages of the competition except for mathematics majors.

(You can use the guide for the competition on our website to obtain samples of questions for each major)

The schedule for the 2020 talent competition

Program	Date		Length in Days	Scientific Disciplines
Register for gifted test	July 8, 2020	September 21, 2020	76	All Specialities
the first stage of Mawhoob test: "Performing an e-test"	September 28, 2020	September 28, 2020	1	Chemistry - Physics - Biology
	September 29, 2020	September 29, 2020	2	Mathematics - Informatics - Sciences
Announcing the results of the first phase	October 1, 2020	October 1, 2020		All Specialities
The second stage of the gifted test: "Performing an e-test"	October 4, 2020	October 4, 2020	2	Chemistry - Physics - Biology
	October 5, 2020	October 5, 2020		Mathematics - Informatics - Sciences
Announcement of phase II results	October 8, 2020	October 8, 2020	1	All Specialities

Exam entry

1. Availability of a computer operating system (Windows or IOS)
2. Connecting the computer device to the internet (making sure that no other device is connected to the network during the testing period to ensure the stability of the connection).
3. Only use **Google Chrome (Google Chrome)** and make sure that it is updated to the latest version **and not** to use any other browser to perform the test, including Microsoft Internet Explorer or Microsoft Edge or Safari.
4. Just keep the Google Chrome browser running and make sure that all other programs and windows are closed during the test.

Entry Instructions:

Enter on the link: <https://mawhiba.classera.com>

Then enter the login data as follows:

1. In the Username field: The email with which the student was registered in Mawhiba portal
2. In the password field: Password sent to you.
3. Click on the blue login button to enter the test



تسجيل الدخول

البريد الإلكتروني الذي تم تسجيل الطالب به في بوابة موهبة

اسم المستخدم

كلمة المرور المرسل لك.

الضغط هنا للدخول إلى الاختبار

تسجيل الدخول

تسجيل الدخول بحساب موهبة

If you encounter difficulty:

What to do if you encounter one of the following problems?

1. Machine restarting problem
2. Close the browser
3. Internet disconnection during the test

We hope that you will follow the steps below to get back for testing

1. Open the browser again and enter the test link <https://mawhiba.classera.com>
2. Then enter the login data
3. Press the start test button
4. Navigating between the test questions is by clicking on the Previous and Next button located in the top left of the screen, above the question in the Arabic interface, and in the upper right of the screen in the English interface.

Test Delivery

Upon completion of answering the test questions:

1. Click on the Submit button located at the bottom of the screen in the last question in the test.
2. When you click on it and confirm the delivery, the test will end and the result will appear to you, and you will not be able to enter it again.

Competition registration link:

<https://www.mawhiba.org/Ar/programs/competitions/mawhoob/Pages/Registration.aspx>

Note: The student who does not have an account in Mawhiba is directed to create an account through the link:

<https://login.mawhiba.org/Check/RegistrationPage.aspx>

And then register for the competition.

Important

1. Mawhiba website has introductory guides for each of the six contest tracks, and each guide contains several experimental questions that explain to the student the type of questions.

<https://www.mawhiba.org/Ar/programs/competitions/mawhoob/Pages/library.aspx>

2. 1- Ensure that you are connected to the internet before the test date.
3. Verify the test login data (username: the remote mail with which the student is registered in Mawhiba portal and the password that will be sent to you later)
4. 3- Entering the test site 15 min before the test time.
5. Avoid closing the browser during the test.
6. 5- Pay attention to the remaining time for the test.
7. 6- There is only one submission attempt for the test.
8. 7- Avoid clicking the Submit button unless you are sure that all questions have been answered and the test has been completed.



رحلة الطالب مع برنامج موهبة للأولمبيادات الدولية

مسابقة موهوب

فيزياء كيمياء أحياء معلوماتية
الصفوف ٨ و ٩ و (١٠ للمعلوماتية فقط)

رياضيات علوم
الصف ٦ و ٧

دورات
أساسية

دورات
أساسية



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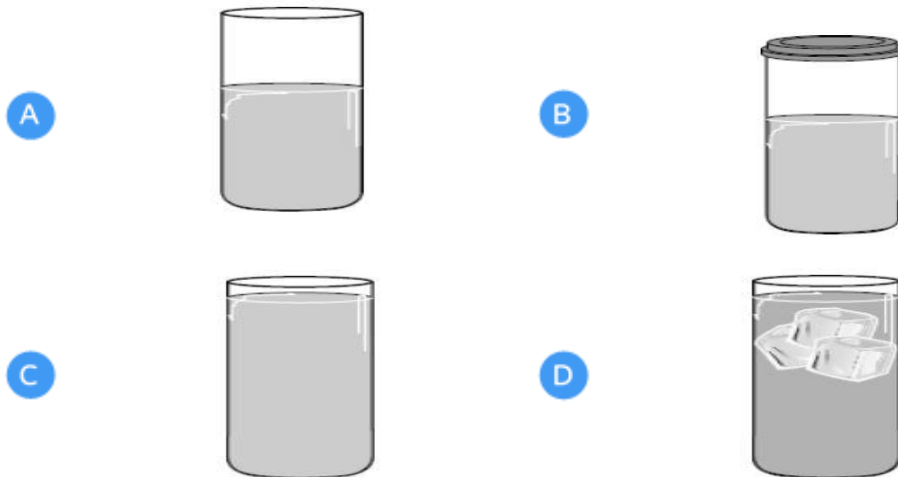
Training exercises

Science Track



Exercise 1

Which of these bottles will lose the most amount of water vapour if supplied with the same amount of heat for the same time period?

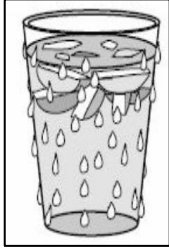


Exercise 2

Cooking gas is produced during the process of either refining crude oil, or during the extraction of natural gas which mainly contains butane and propane with small amounts of other gases. Describe the component material of the gas cylinder?

- A Mixture
- B Compound
- C Element
- D Compound

Exercise 3



Suppose you pour a glass of ice water and set it on the kitchen table. After a few minutes, you noticed that the glass was covered with drops of water. Why do you think this happened?

- A Oxygen in the air-cooled and condensed onto the cold glass.
- B Water vapour in the air cooled and evaporated onto the cold glass
- C Water vapour in the air cooled and condensed onto the cold glass
- D Water leaks through pores in the glass.

Exercise 4

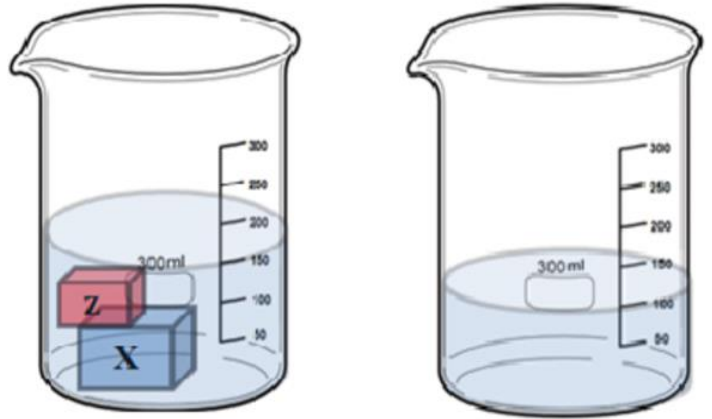
Based on the corresponding figure, choose what suits the description of the location of characters (x, z, y)?

- A (x) liquid, (z) cooling, (y) vapour
- B (x) liquid, (z) heating, (y) vapour
- C (x) solid, (z) condensation, (y) vapour
- D (x) liquid, (z) heating, (y) liquid

Exercise 5

Cubes X and Z are in beaker (300 mL), The volume of X is three times the volume of Z.

- A (X) 42.8 ml (Z)7.2 ml
- B (X) 37.5 ml (Z)12.5 ml
- C (X) 40.5 ml (Z) 9.5 ml
- D (X) 31.5 ml (Z)18.5 ml



Exercise 6

which of the following lists the elements in order, from those having the most protons to those having the least protons in the atoms (ordered from left to right)?

- A Rb, K, Na, Li
- B O, N, B, Li
- C O, S, Se, Te
- D Na, S, Al, Cl

	1	2				13	14	15	16	17	18		
1	H										He		
2	Li	Be				B	C	N	O	F	Ne		
3	Na	Mg		3		Al	Si	P	S	Cl	Ar		
4	K	Ca		Sc		Cu	Zn	Ga	Ge	As	Se	Br	Kr
5	Rb	Sr		Y		Ag	Cd	In	Sn	Sb	Te	I	Xe
6	Ce	Pr		*		Au	Hg	Tl	Pb	Bi	Po	At	Rn

Exercise 7

If you put a metal spoon and a wooden spoon into a pot of boiling water, one will become too hot to touch. Why?

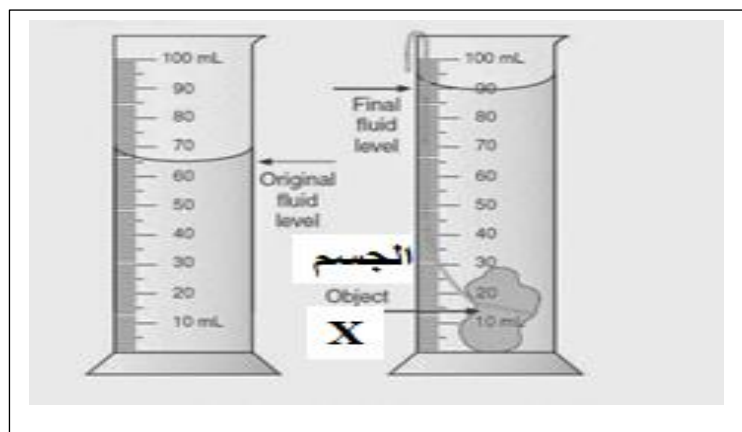
- A Metals conduct heat better than wood
- B Wood conducts heat better than metals.
- C Metals pull in heat because heat is attracted to metals.
- D Wood isn't as strong as metals.



Exercise 8

What is the volume of object X in the figure below?

- A 10.0 cm³
- B 15.0 cm³
- C 20.0 cm³
- D 25.0 cm³



Exercise 9

a group of people were concerned about a new coal-burning power plant that might be built in their neighbourhood. what is probably their main concern?

- A burning coal produces more heat than burning wood.
- B there is more coal in the earth than there are oil and gas.
- C the heat from burning coal can drive generators that produce electricity
- D burning coal produces sulfur dioxide which contributes to acid rain

Exercise 10

In the chemical formula for ammonia NH_3 , what does the subscript 3 represent?

- A the number of ammonia molecules that will bond together.
- B the number of hydrogen atoms in each molecule of ammonia.
- C the number of nitrogen and hydrogen atoms in each molecule of ammonia.
- D the number of nitrogen atoms in each molecule of ammonia.

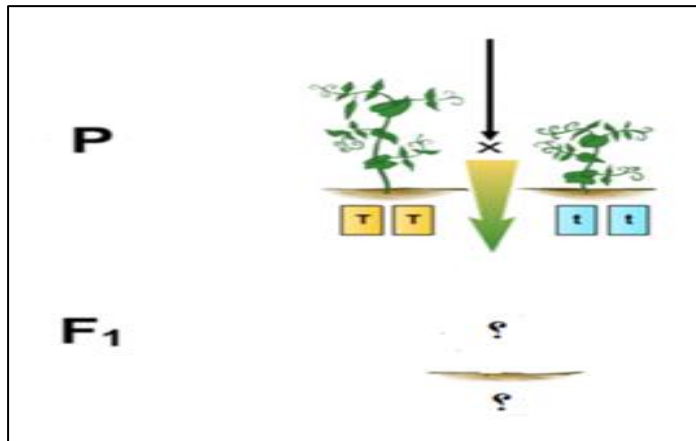
Exercise 11

Which of these organisms can have Centrioles?

- A Insect
- B Bacteria
- C Grape
- D Paramecium

Exercise 12

What is the Phenotype - Genotype of the first-generation F₁?



- A Long - TT
- B Long - Tt
- C Short - Tt
- D Short - tt

Exercise 13

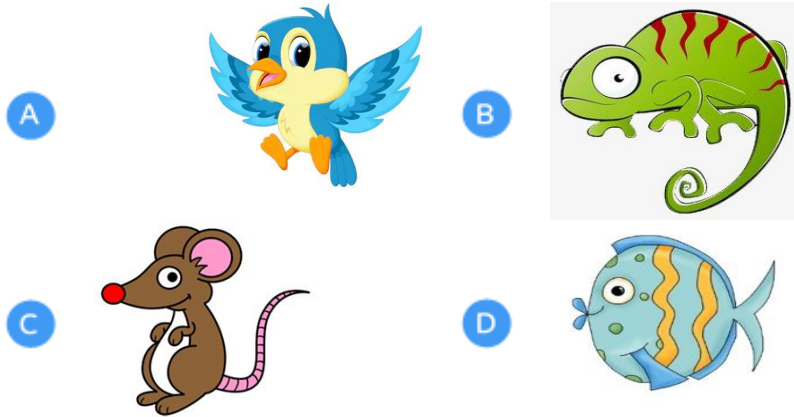
The material produced by photosynthesis and disposed of by the plant is?

- A Oxygen
- B Carbon dioxide
- C water
- D glucose



Exercise 14

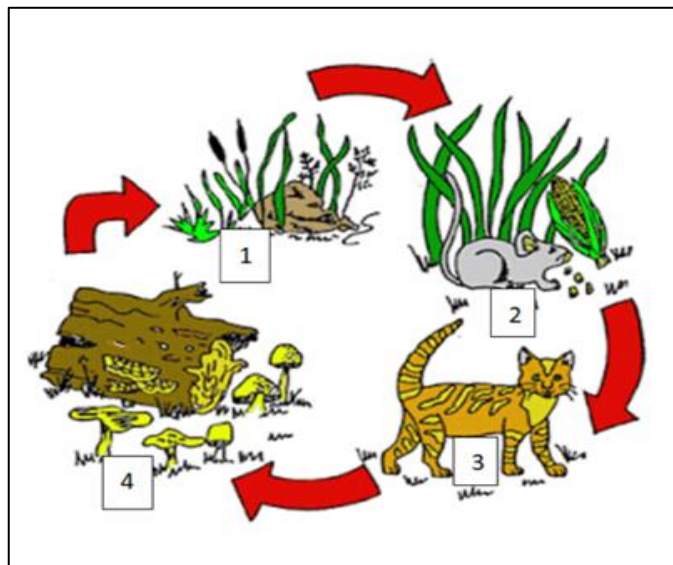
Which of the following organisms has a single circulatory system?



Exercise 15

Food energy is stored more in? Choose from 1 to 4

- A 1
- B 2
- C 3
- D 4



Exercise

What is the relationship between Rimura fish and sharks?



- A Commensalism
- B Mutualism
- C Parasitism
- D Saprobies

Exercise 17

The most common gas in the air is?

- A Oxygen
- B Carbon Dioxide
- C Nitrogen
- D Phosphorus

Exercise 18

Which of the following biological processes contribute to the survival of bacteria?

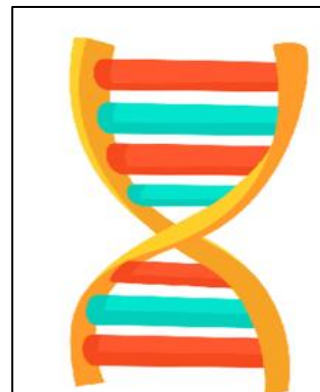
- A Conjugation
- B By spores
- C Binary fission
- D Budding



Exercise 19

Nitrogen is important in DNA replication.. Which of the following substances provide the body with nitrogen?

- A Water
- B Carbohydrates
- C Proteins
- D Lipids



Exercise 20

What level of organization does the leaf represent in the plant?

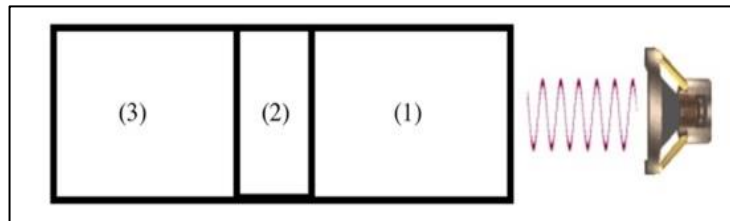
- A Cell
- B Tissue
- C Organism
- D System



Exercise 21

An acoustic wave crosses three media. If its velocity in the medium 2 is as much as possible and the medium 1 is the least possible, then the type of materials that make up this medium are:

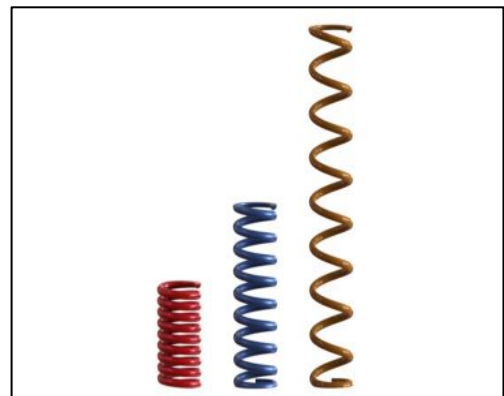
- A Gas - solid - liquid
- B solid - liquid - gas
- C Gas - liquid - gas
- D Liquid - solid - gas



Exercise 22

The spring will have potential energy when?

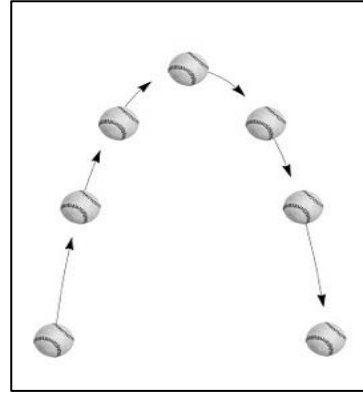
- A it is pulled out
- B it is compressed
- C both (A) and (B)
- D neither (A) nor (B)



Exercise 23

A baseball is thrown vertically into the air. The acceleration of the ball at its highest point is: (Neglect air drag)

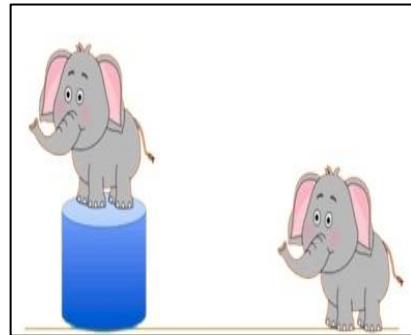
- A 0.5 g, down
- B 0.5 g, up
- C 1 g, down
- D 1 g, up



Exercise 24

The difference between the two elephants in the picture is:

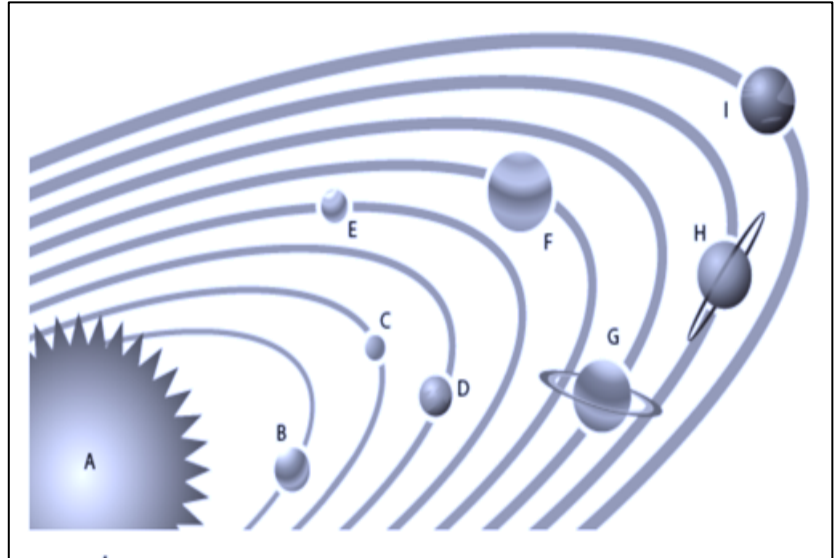
- A Both have the same energy
- B The right one has more energy
- C The left one has less energy
- D The left one has higher energy



Exercise 25

Object "A" is:

- A Comet
- B Star
- C Planet
- D Asteroid



Exercise 26

The water is heading toward the balloon due to:

- A Gravity
- B Pressure
- C Air
- D Electricity



Exercise 27

On the back journey, this bus runs 50 km in 30 minutes, so the speed of the bus was is in (m/s) unit:

- A 25.55
- B 26.66
- C 27.77
- D 28.88

Exercise 28

Mohammed moved from his house 600 meters and then stopped and then continued to walk again in the same direction and cut a quarter of his journey before stopping and then returned towards the house and stopped in the middle of the road, how much far from his house (in meters)?

- A 315
- B 335
- C 375
- D 395

Exercise 29

Saad holds two boxes weighing 100 Newtons. Move 100 m (as shown in the figure), the amount of work done (in joules):

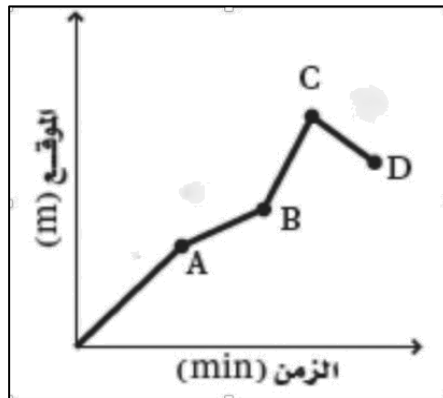
- A 0
- B 10
- C 100
- D 1000



Exercise 30

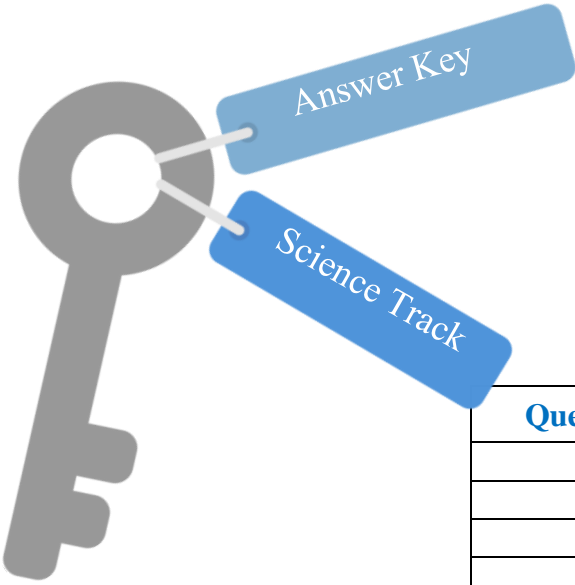
The graph represents someone's movement. Which point is as far as possible from the starting point?

- A A
- B B
- C C
- D D



Answer Key





Question	Correct Answer
1	A
2	A
3	C
4	C
5	B
6	C
7	A
8	D
9	D
10	B
11	A
12	B
13	A
14	D
15	A
16	A
17	C
18	B
19	C
20	C
21	A
22	C
23	C
24	D
25	B
26	D
27	C
28	C
29	A
30	C

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Done