وزارة التربية والتعليم والتعليم الفني

Physics

Second Secondary Grade

Homework

20
26

Week **4**

Name: ....

Class: ....

School: ....

إعـــداد

مجدي فتحي- محمد عنتر

مراجعة

عمرو مالي - حسن أشرف

مكتب مستشار العلوم

عبدالله مصطفى – سعيد محمد

إشراف

د/ عزيزة رجب خليفة
مستشار العلــــوم

إشراف عام

د/ هالة عبدالسلام خفاجي
رئيس الإدارة المركزية للتعليم العام

## Chapter (2) / (Acceleration)

First Choose the correct answer:-

1) Which of the following statements does not correctly describe the acceleration?

   a) An object increases its velocity during motion
   b) An object that changes the direction of its velocity during motion
   c) An object that decreases its velocity during motion
   d) An object that changes its displacement regularly over time

2) When the driver presses the brake, the car moves at an acceleration of ....

   a) in the same direction as its motion, slowing down
   b) in the opposite direction to its motion, slowing down
   c) in the same direction as its motion, speeding up
   d) in the opposite direction to its motion, speeding up

3- When a ball rolls down an inclined plane, ...

   a) its velocity increases, so the acceleration is positive
   b) its velocity increases, so the acceleration is negative
   c) its velocity decreases, so the acceleration is positive
   d) its velocity decreases, so the acceleration is negative

4- If a body starts moving from rest, the ratio of its velocity after a certain time to its acceleration is equal to ....

   a. Initial velocity of the body
   b. Final velocity of the body
   b) Acceleration of the body
   c) Time of movement of the body

5- When you observe the motion of four different objects at equal time intervals as shown in the figures below, which figure represents a case where the acceleration is in the same direction as the motion?
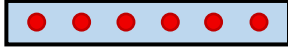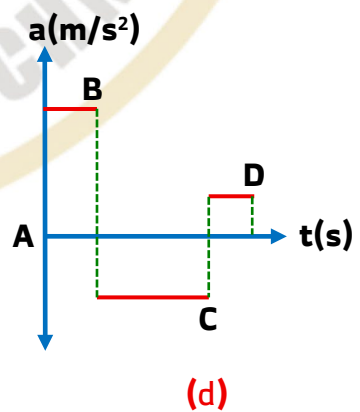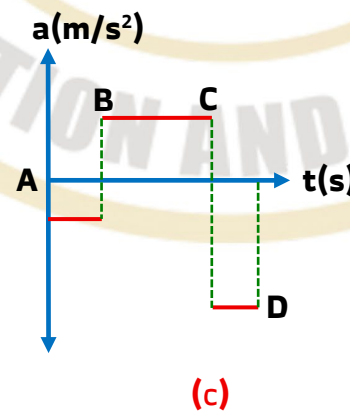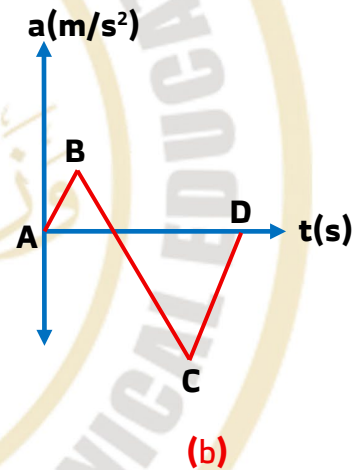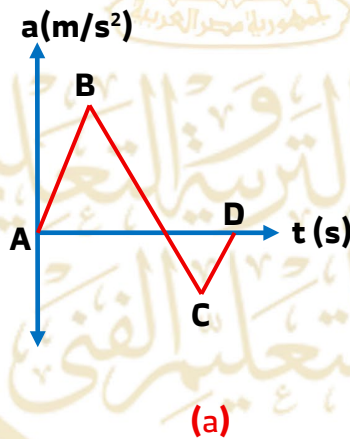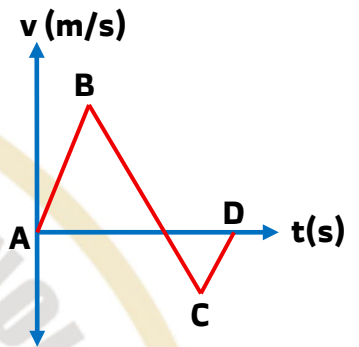
| Object(A) | Object(B) | Object(C) | Object(D) |

6- If the graph shows the change in the velocity of a moving object over time, Then, which of the following graphs shows the change in the acceleration of the same object over the same periods of time?

(a)

(b)

(c)

(d)

7- The graph shows the relationship between the velocity of an object (v) and time (t). The ratio between its acceleration in the period (AB) and its acceleration in the period (BC) is equal to ....
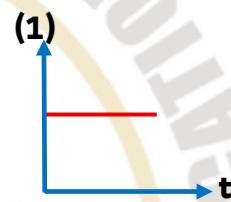
(a) $\dfrac{1}{2}$ (b) $\dfrac{1}{3}$

(c) $\dfrac{2}{1}$ (d) $\dfrac{3}{1}$
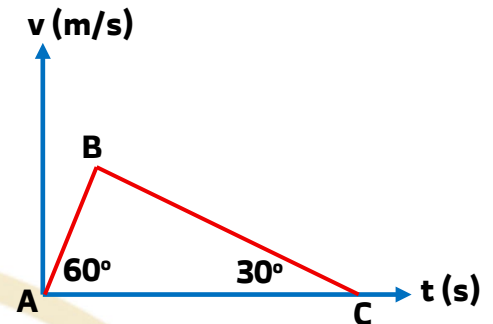
8- If the following two graphs represent the motion of two bodies, A and B, at constant acceleration, then the dimension formula of the physical quantity resulting from the ratio between quantities (1) and (2) are, respectively, ...

(2)

(A)

(1)
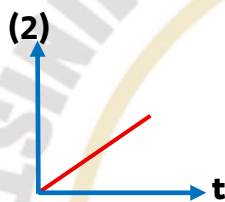
(B)

(a) $M^0.L^0.T$ (b) $M^0.L^0.T^{-1}$ (c) $M^0.L.T^{-2}$ (d) $M^0.L^0.T^{-2}$

9- If the following two graphs represent the motion of two bodies, A and B. Then, the ratio between the acceleration of object (A) and that of object (B) is equal to ....

(A)

(B)
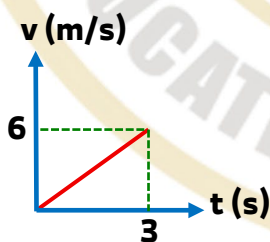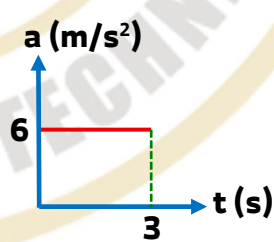
(a) $\dfrac{2}{1}$ (b) $\dfrac{3}{1}$ (c) $\dfrac{1}{2}$ (d) $\dfrac{1}{3}$

1. Object (A) began moving from rest at an acceleration of 2 m/s², while object (B) began moving at a velocity of 20 m/s at an acceleration of -2 m/s². Calculate the velocity of each object 5 seconds from the start of motion.

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Assessment

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Chapter (2) / (Acceleration)

First Choose the correct answer:-

1) The dimensional formula of acceleration is…….

(a) $M^0 L / T^{-2}$ (b) $M^0 L^{-2} T^0$

(c) $M^0 L^{-1} T^{-2}$ (d) $M^{-2} L^0 T^0$

2- If the velocity of a car increases uniformly, its acceleration is ……………

   (a) always positive   (b) always negative

   (c) always zero   (d) positive or negative depending on the direction of velocity

3- A car is moving north at a velocity of 90 km/h. If its acceleration is 3 m/s² south, its velocity after 6 s will be ……………

   (a) 25.2 m/s north   (b) 7 m/s south

   (c) 25.2 km/h north   (d) 7 km/h south

4- An object started moving from rest at a constant acceleration. Its average velocity during time (t) from the starting was 9 m/s. So, its average velocity during time (3t) from the starting is ……… …….

   (a) 9 m/s   (b) 18 m/s

   (c) 27 m/s   (d) 3 m/s

5- The corresponding graph shows the relationship between the velocity (v) of two objects (X) and (Y) and time (t). The ratio between the acceleration of objects (X) and (Y) respectively is ………………

(a) $\dfrac{\sqrt{3}}{1}$

(b) $\dfrac{\sqrt{2}}{1}$

(c) $\dfrac{1}{\sqrt{3}}$

(d) $\dfrac{1}{\sqrt{2}}$
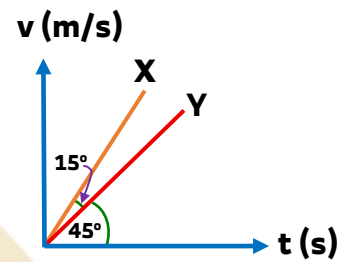
6- By studying the graph shown, the ratio between the magnitude of the acceleration in period (AB) and its magnitude in period (CD) is equal to ………………

(a) $\dfrac{1}{2}$

(b) $\dfrac{1}{1}$

(c) $\dfrac{2}{1}$

(d) $\dfrac{5}{2}$

3
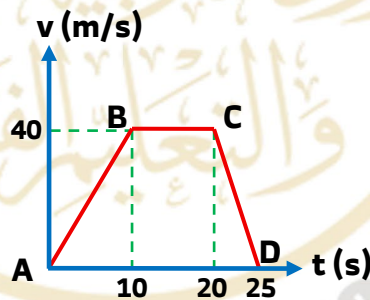
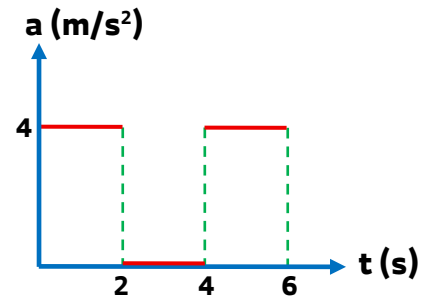7- The corresponding graph shows the relationship between the acceleration of an object and the time it takes to move. According to the graph, the velocity of the object after 5 seconds from the starting of motion is equal to ....

a (m/s²)

4

2   4   6   t (s)

(a) **8 m/s**　　　　　　　　　　　　(b) **16 m/s**

(c) **4 m/s**　　　　　　　　　　　　(d) **12 m/s**

8- Based on your study of the following graphs, the relationship that expresses the motion of a body with acceleration = zero is ....

v (m/s) t (s)　　d (m) t (s)　　v (m/s) t (s)　　d (m) t (s)

(D)　　　　　　(C)　　　　　　(B)　　　　　　(A)
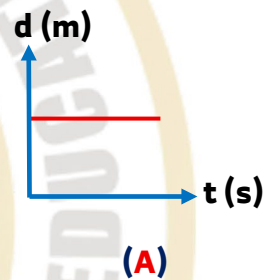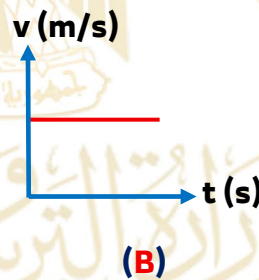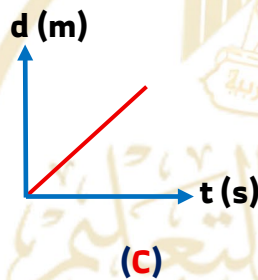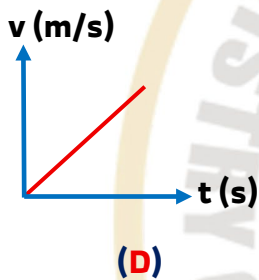
(a) **Only graphs (C) and (B)**　　　　(b) **Only graph (B)**

(c) **All the graphs**　　　　　　　　(d) **Only graphs A, B and C**

9- Based on your study of the following graphs, the relationship that expresses the motion of a body with a uniform acceleration is ....

d (m) t (s)　　a (m/s²) t (s)　　v (m/s) t (s)　　d (m) t (s)

(D)　　　　　　(C)　　　　　　(B)　　　　　　(A)
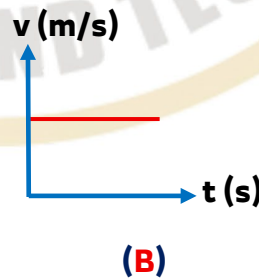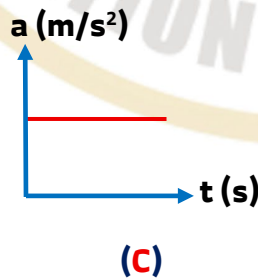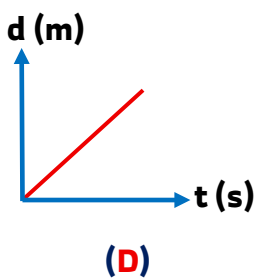
(a) Only graphs (B) and (C)　　　　(b) Only graph (C)

(c) All the graphs　　　　　　　　(d) Only graphs C and D

10- If the graph shows the acceleration of an object over time, then the graph showing the change in displacement of the same object over the same period of time is ………………

a (m/s²)

t (s)

d (m)

t (s)

(a)

d (m)

t (s)

(b)

d (m)

t (s)

(c)

d (m)

t (s)

(d)
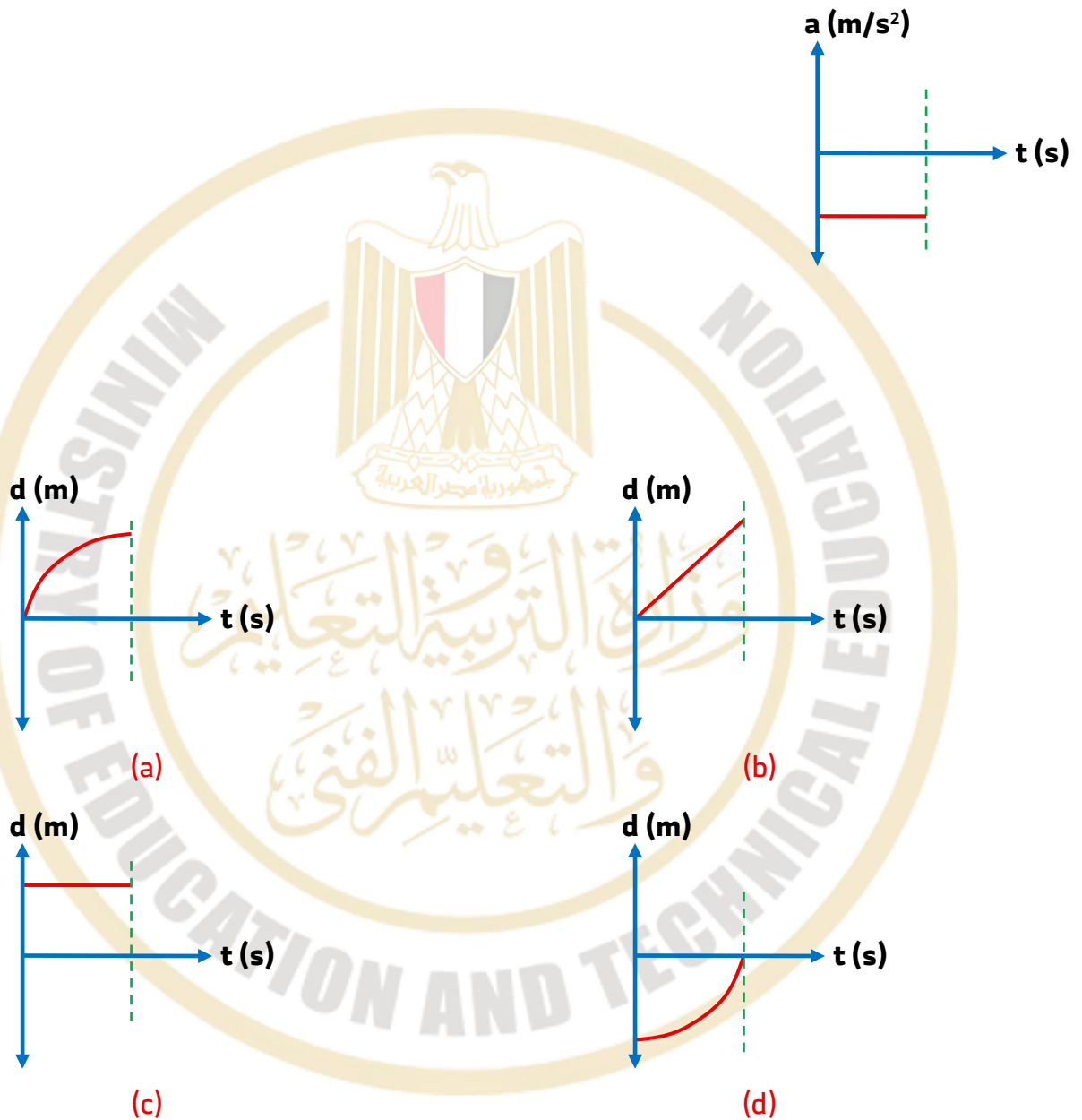
11. An object moves from rest at a constant acceleration, and its average velocity is 12 m/s when its displacement is 24 m. Calculate its average velocity during the first 10 s of the motion.

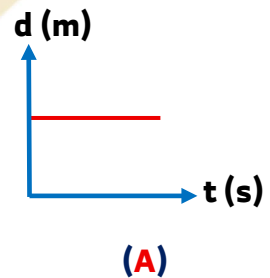
12. The corresponding graph: Illustrates the relationship between displacement (d) and time (t) of an object. Draw a graph to illustrate the relationship expressing the acceleration (a) of the object in each time interval.

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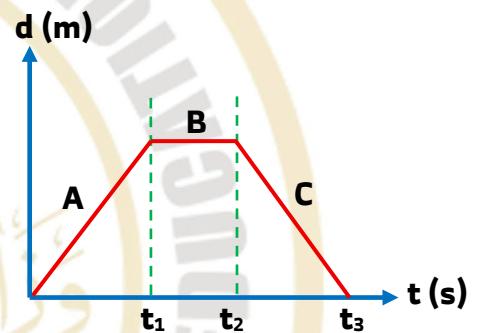
13. The corresponding graph: Illustrates the relationship between velocity (v) and time (t) of an object. Draw a graph to illustrate the relationship expressing the acceleration (a) of the object in each time interval.

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14. A car is moving at a constant velocity of 90 km/h in a straight line. When the driver presses the brakes, the car starts to decelerates uniformly until stops after 12.5 s. Calculate the acceleration of the car before and after pressing the brakes and determine the type of each.

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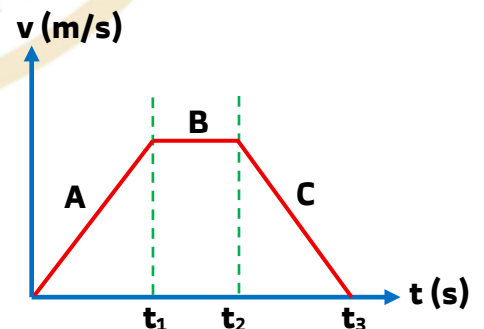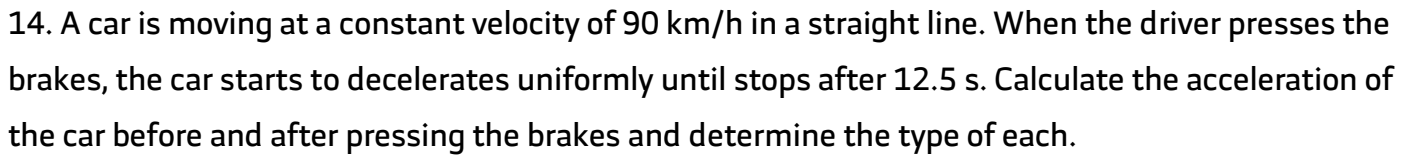
15. An object moves with a constant acceleration of 3 m/s^2. Calculate its velocity after 15 s if it started moving at a velocity of 30 m/s.