

# Past papers for physics

## Chapter (2)

- 1) Which of these statements is (are) true?
  - 1- An object can have zero velocity and zero acceleration
  - 2- An object can have zero velocity and non-zero acceleration
  - 3- An object can have zero acceleration and be in motionA) 1 only    B) 1 and 3    C) 1 and 2    D) 1, 2, and 3    E) None
- 2) The velocity of a particle moving along the x-axis is given by:  $v(t) = 2t + 1$  where t is in seconds and v(t) in m/s. The average acceleration (in  $\text{m/s}^2$ ) over the time interval 0 to 2s is:
  - A) 2.0
  - B) -1.0
  - C) 0
  - D) 1.0
  - E) -2.0
- 3) An object is moving along the positive x-direction its acceleration  $-3 \text{ m/s}^2$ . Which of the following statements is correct:
  - A) the speed of the object will decrease.
  - B) the object will accelerate.
  - C) the speed of the object will increase.
  - D) the object will never reverse its direction of motion.
  - E) the object will always be moving in the positive x-direction.
- 4) A car moving in one x-dimension travels from point A to point B at an average speed of 40 km/h. It then reverses direction and moves from point B back to point A at 20 km/h. Its average speed (in km/h) over the entire trip is:
  - A) 26.7
  - B) 20.0
  - C) 0
  - D) 30.0
  - E) 60.0

5) The position of an object moving along the x-axis varies with time according to the equation

$$x(t) = t^2 + 3t - 1.$$

The average velocity (in m/s) of this object over the time interval 1 to 3s is:

- A) -7.0
- B) 10
- C) 7.0
- D) -1.5
- E) 1.5

6) The position of a particle moving along the x axis is given by:

$$X(t) = (21\text{m}) + (22\text{m/s})t - (6.0\text{m/s}^2)t^2, \text{ where } t \text{ is in sec.}$$

What is the average velocity during the time interval  $t = 0.0 \text{ s}$  to  $t = 3.0 \text{ s}$ ?

- a) 6
- b) 18
- c) 4
- d) The equation of  $x(t)$  is wrong by dimensional analysis

7) The dots in the figure show the position of an object moving along the x-axis as a function of time. Which of the following statements about this object is true over the time interval shown?



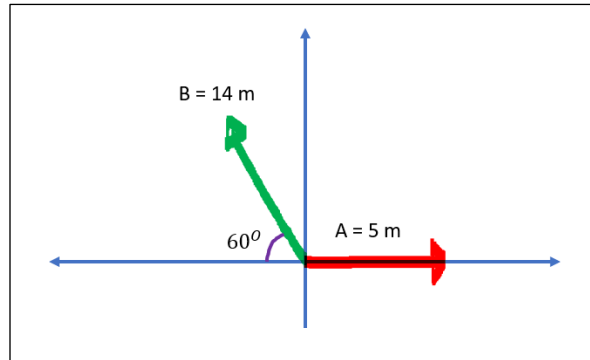
- A) The object is accelerating to the left.
- B) The object is accelerating to the right
- C) The object is moving at constant velocity
- D) The average speed of the object is 9 m/s
- E) The average velocity of the object is 3 m/s

Question	1	2	3	4	5	6	7
Answer	D	A	A	A	C	C	B

## Chapter 3

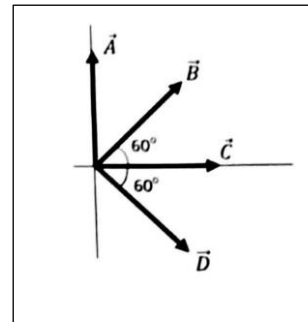
- 1) Vectors A and B are represented as shown in the figure. What is the angle of their resultant  $R=A+B$  with respect to the positive x-axis?

- A) 44.5
- B) 135.5
- C) 77
- D) 99.4
- E) 112



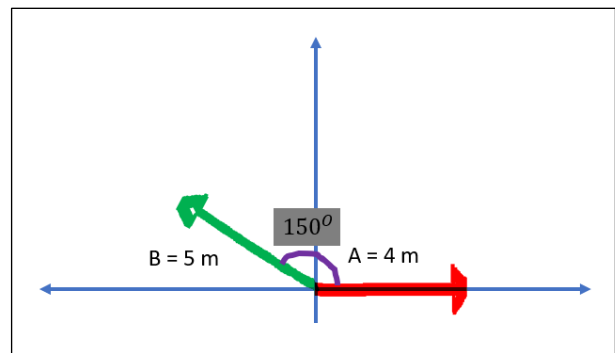
- 2) In the figure, ALL FOUR vectors have the same magnitude of 5 units. The magnitude of the resultant vector  $R=A+B+C+D$  is:

- A) 5 units
- B) 11.2 units
- C) 15 units
- D) 7.1 units
- E) 20 units



- 3) Vectors A & B are shown below, calculate the degree of the resultant with respect to the + x axis:

- a) -77
- b) -82
- c) 93
- d) 103
- e) 98



- 4) A car starts from the origin and drives 2.2 km south, then 3.1 km in a direction 53 degree north of east. What is the car's final position relative to the origin?
- a) 1.9 east
  - b) 1.9 east and 1.2 north
  - c) 3.1 east and 1.2 south
  - d) 1.9 east and 0.3 south
  - e) 1.9 east and 0.3 north

Question	1	2	3	4
Answer	D	B	E	E