

Name: _____ Class: _____ Date: _____

| Scroll Down.

Assessment

Two-Dimensional Motion and Vectors

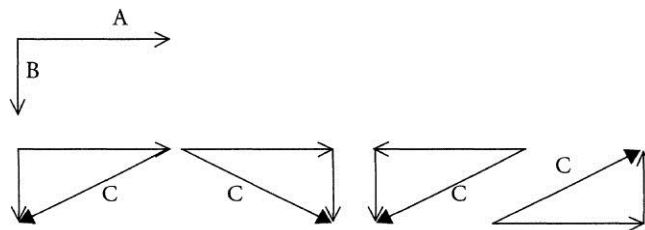
Chapter Test A

MULTIPLE CHOICE

In the space provided, write the letter of the term or phrase that best completes each statement or best answers each question.

- _____ 1. Which of the following is a physical quantity that has a magnitude but no direction?
- | | |
|-----------|-----------------------|
| a. vector | c. resultant |
| b. scalar | d. frame of reference |

- _____ 2. Which of the following is an example of a vector quantity?
- | | |
|----------------|-----------|
| a. velocity | c. volume |
| b. temperature | d. mass |



- _____ 3. In the figure above, which diagram represents the vector addition, $\mathbf{C} = \mathbf{A} + \mathbf{B}$?

- | | |
|-------|--------|
| a. I | c. III |
| b. II | d. IV |

- _____ 4. In the figure above, which diagram represents vector subtraction, $\mathbf{C} = \mathbf{A} - \mathbf{B}$?

- | | |
|-------|--------|
| a. I | c. III |
| b. II | d. IV |

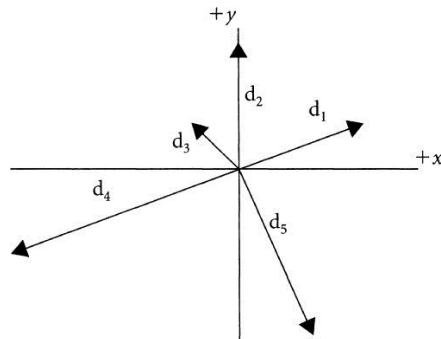
- _____ 5. Multiplying or dividing vectors by scalars results in

- | |
|---|
| a. vectors. |
| b. scalars. |
| c. vectors if multiplied or scalars if divided. |
| d. scalars if multiplied or vectors if divided. |

- _____ 6. In a coordinate system, a vector is oriented at angle θ with respect to the x -axis. The x component of the vector equals the vector's magnitude multiplied by which trigonometric function?

- | | |
|------------------|------------------|
| a. $\cos \theta$ | c. $\sin \theta$ |
| b. $\cot \theta$ | d. $\tan \theta$ |

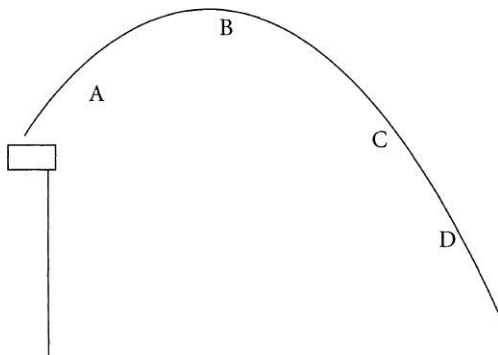
Chapter Test A *continued*



- _____ 7. How many displacement vectors shown in the figure above have horizontal components?
- | | |
|------|------|
| a. 2 | c. 4 |
| b. 3 | d. 5 |
- _____ 8. Which displacement vectors shown in the figure above have vertical components that are equal?
- | | |
|--------------------------------------|--------------------------------------|
| a. $\mathbf{d_1}$ and $\mathbf{d_2}$ | c. $\mathbf{d_2}$ and $\mathbf{d_5}$ |
| b. $\mathbf{d_1}$ and $\mathbf{d_3}$ | d. $\mathbf{d_4}$ and $\mathbf{d_5}$ |
- _____ 9. A hiker undergoes a displacement of $\mathbf{d_5}$ as shown in the figure above. A single displacement that would return the hiker to his starting point would have which of the following sets of components?
- | | |
|--|--|
| a. $+\mathbf{d_{5,x}}$; $+\mathbf{d_{5,y}}$ | c. $-\mathbf{d_{5,x}}$; $+\mathbf{d_{5,y}}$ |
| b. $+\mathbf{d_{5,x}}$; $-\mathbf{d_{5,y}}$ | d. $-\mathbf{d_{5,x}}$; $-\mathbf{d_{5,y}}$ |
- _____ 10. Which of the following is an example of projectile motion?
- a jet lifting off a runway
 - a baseball being thrown
 - dropping an aluminum can into the recycling bin
 - a space shuttle orbiting Earth
- _____ 11. What is the path of a projectile?
- a wavy line
 - a parabola
 - a hyperbola
 - Projectiles do not follow a predictable path.
- _____ 12. Which of the following exhibits parabolic motion?
- a stone thrown into a lake
 - a space shuttle orbiting Earth
 - a leaf falling from a tree
 - a train moving along a flat track

Chapter Test A *continued*

- _____ 13. Which of the following does *not* exhibit parabolic motion?
- a. a frog jumping from land into water
 - b. a basketball thrown to a hoop
 - c. a flat piece of paper released from a window
 - d. a baseball thrown to home plate



- _____ 14. At what point of the ball's path shown in the figure above is the vertical component of the ball's velocity zero?
- a. A
 - b. B
 - c. C
 - d. D
- _____ 15. A passenger on a bus moving east sees a man standing on a curb. From the passenger's perspective, the man appears to
- a. stand still.
 - b. move west at a speed that is less than the bus's speed.
 - c. move west at a speed that is equal to the bus's speed.
 - d. move east at a speed that is equal to the bus's speed.
- _____ 16. A piece of chalk is dropped by a teacher walking at a speed of 1.5 m/s. From the teacher's perspective, the chalk appears to fall
- a. straight down.
 - b. straight down and backward.
 - c. straight down and forward.
 - d. straight backward.