

Assessment

Two-Dimensional Motion and Vectors

Section Quiz: Introduction to Vectors

Write the letter of the correct answer in the space provided.

- _____ 1. In a diagram, the length of a vector arrow represents the
- type of vector.
 - direction of the vector.
 - magnitude of the vector.
 - cause of the vector.
- _____ 2. Which of the following quantities used to describe motion is an example of a vector quantity?
- distance
 - speed
 - time
 - average velocity
- _____ 3. A vector remains unchanged
- if it is moved in any direction.
 - only if it is moved parallel to its original direction.
 - only if it is rotated perpendicular to its original direction.
 - only if it is *not* moved.

Refer to the figure below to answer questions 4–6.



- _____ 4. Which of the displacements, when added in the order given, will yield a displacement equal to $d_1 + d_2 + d_3$?
- $d_3 + d_4 + d_1$
 - $d_2 + d_1 + d_3$
 - $d_2 + d_4 + d_3$
 - $d_4 + d_3 + d_1$
- _____ 5. Which of the following represents the vector resulting in the subtraction of the displacement vectors $d_2 - d_1$ shown in the figure?
- -
 -
 -

Two-Dimensional Motion and Vectors *continued*

- _____ 6. In the figure,
- a. $\mathbf{d}_1 = \mathbf{d}_4$.
 - b. $\mathbf{d}_1 = -\mathbf{d}_4$.
 - c. $\mathbf{d}_2 = -2\mathbf{d}_4$.
 - d. $\mathbf{d}_3 = \frac{1}{2}\mathbf{d}_1$.
- _____ 7. If vectors are moved according to the rules of the triangle method of vector addition, then the resultant vector is drawn
- a. from the tail of the first vector to the tail of the last vector.
 - b. from the tail of the first vector to the tip of the last vector.
 - c. from the tip of the first vector to the tail of the last vector.
 - d. from the tip of the first vector to the tip of the last vector.
- _____ 8. A skier slides onto a horizontal patch of slushy snow at velocity $\mathbf{v}_{\text{skier}}$, and slows to a constant speed without changing direction. Which of the following expressions could be the skier's resulting velocity?
- a. $-3\mathbf{v}_{\text{skier}}$
 - b. $+\frac{1}{4}\mathbf{v}_{\text{skier}}$
 - c. $-\frac{1}{5}\mathbf{v}_{\text{skier}}$
 - d. all of the above
9. What is the major difference between a vector quantity and a scalar quantity?
- _____
- _____
- _____
10. A bicycle courier accepts a package and bikes 3 blocks east to the intersection of the street shown on the address label. Encountering road construction, the courier detours by continuing one block east, one block north, and one block west. The courier then bikes two blocks north to the address. What is the resultant displacement of the courier? Use the graphical method.