

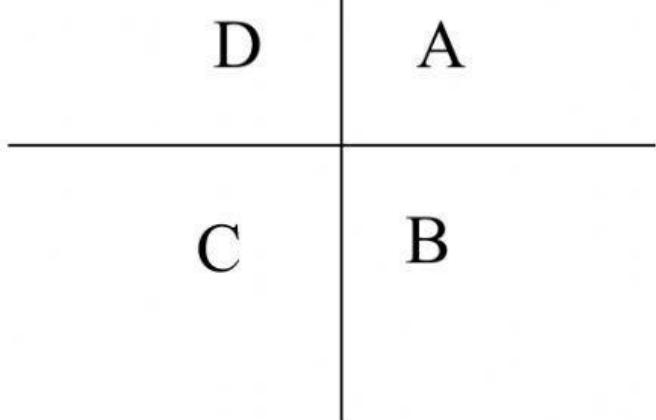
Name: \_\_\_\_\_ Date: \_\_\_\_\_

## PHYSICS VECTORS AND SCALARS

**Part 1.** Determine if the physics parameter is a **vector measurement** or **scalar measurement**. If a vector, write **V** in the space beside the word. If a scalar, write **S** in the space beside the word.

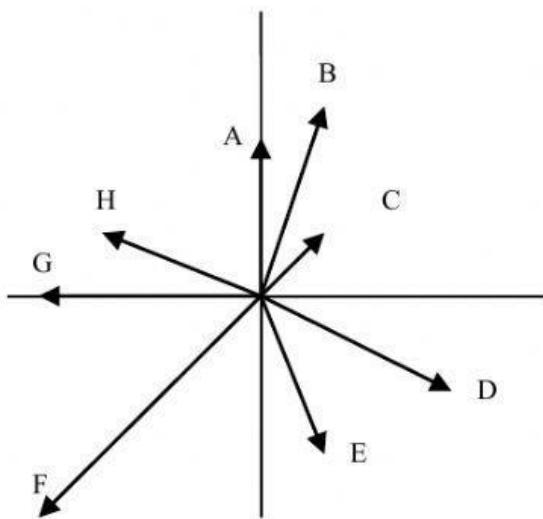
_____	Time	_____	Work
_____	Distance	_____	Momentum
_____	Area	_____	Weight
_____	Velocity	_____	Mass
_____	Speed	_____	Volume
_____	Force	_____	Charge
_____	Displacement	_____	Magnetic Field
_____	Energy	_____	Acceleration

**Part 2. Coordinates and Direction.** Identify in which quadrant (A, B, C, or D) each direction lies given geographic or Cartesian directions. Choose the correct letter in the box next to the given direction.



Move east, then north	<input type="checkbox"/>	45°
Move north, then west	<input type="checkbox"/>	355°
Move south, then east	<input type="checkbox"/>	30°
Move west, then south	<input type="checkbox"/>	305°
325°	<input type="checkbox"/>	100°
120°	<input type="checkbox"/>	225°

**Part 3. Vectors.** Match the letter of the vector on the coordinates with the magnitude & directions listed in the table to the right. The directions are based on polar coordinates.



2 km @ 45°	8 km @ 330°
8 km @ 180°	6 km @ 160°
10 km @ 225°	6 km @ 290°
4 km @ 90°	7 km @ 70°

**Part 4: Multiple Choice.** Choose the correct answer.

1. Which positional directions are negative directions by convention?  
A. Up & Left C. Down & Left  
B. Up & Right D. Down & Right
2. Which positional directions are positive directions by convention?  
A. Up & Left C. Down & Left  
B. Up & Right D. Down & Right
3. Which geographic directions are negative directions by convention?  
A. North & East C. South & East  
B. North & West D. South & West
4. Which geographic directions are positive directions by convention?  
A. North & East C. South & East  
B. North & West D. South & West
5. All scalar measurements need  
A. Magnitude and direction C. Direction only  
B. Magnitude only D. No units

6. All vector measurements need

- A. Magnitude and direction
- B. Magnitude only
- C. Direction only
- D. No units

7. Betty rode her motorcycle with a velocity of 30 m/s NW. What is the 30 m/s?

- A. The direction
- B. The magnitude
- C. The displacement
- D. The measurement

8. Which vectors are identical?

- A. 80 north & 80 east
- B. 80 north & 60 north
- C. 60 north & 60 north
- D. 60 north & 60 east

9. Which vectors are identical?

- A. 25 south & 50 south
- B. 50 east & 50 east
- C. 50 east & 25 east
- D. 25 east & 25 west

Helen walked 50 m E, turned, walked 40 m N. Which direction best

10. describes Helen's overall direction of movement?

- A.  $39^\circ$
- B.  $129^\circ$
- C.  $141^\circ$
- D.  $219^\circ$

Lolita walked 80 m W, turned, walked 25 m N. Which direction best

11. describes Lolita's overall direction of movement?

- A.  $83^\circ$
- B.  $163^\circ$
- C.  $197^\circ$
- D.  $253^\circ$

Noelle traveled 100 m @  $90^\circ$ , turned 50 m @  $180^\circ$ . Which direction best

12. describes Noelle's overall direction of movement?

- A. North
- B. Northeast
- C. Northwest
- D. East