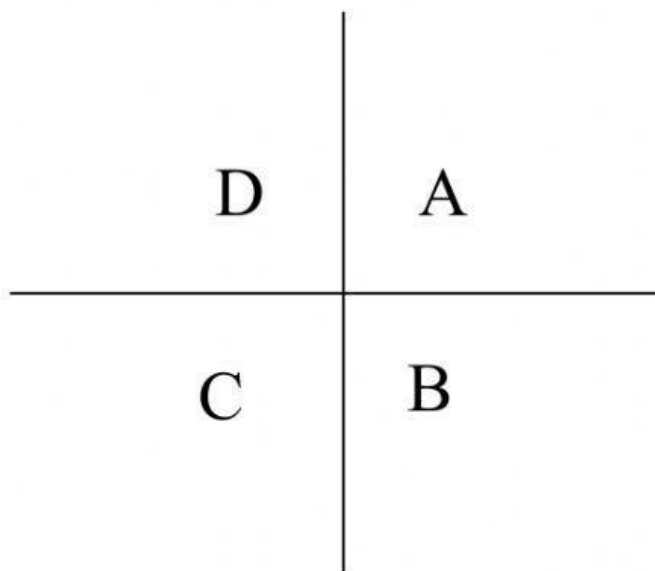


Name: \_\_\_\_\_ Date: \_\_\_\_\_

## 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.

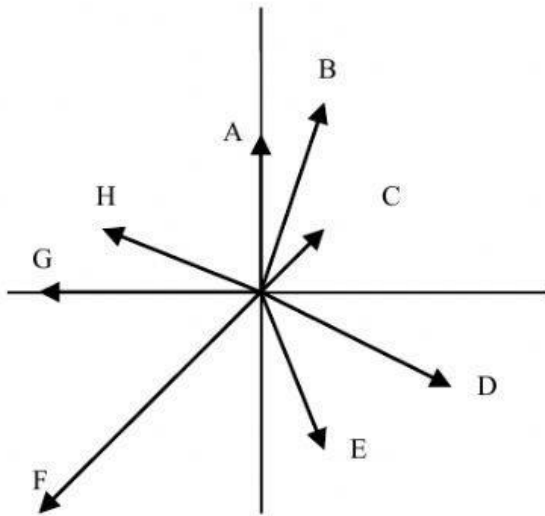
|                    |                      |
|--------------------|----------------------|
| _____ Time         | _____ Work           |
| _____ Distance     | _____ Momentum       |
| _____ Area         | _____ Weight         |
| _____ Velocity     | _____ Mass           |
| _____ Speed        | _____ 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="text"/> | 45°  | <input type="text"/> |
| Move north, then west | <input type="text"/> | 355° | <input type="text"/> |
| Move south, then east | <input type="text"/> | 30°  | <input type="text"/> |
| Move west, then south | <input type="text"/> | 305° | <input type="text"/> |
| 325°                  | <input type="text"/> | 100° | <input type="text"/> |
| 120°                  | <input type="text"/> | 225° | <input type="text"/> |

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

- \_\_\_\_\_ 6. All vector measurements need  
A. Magnitude and direction C. Direction only  
B. Magnitude 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 C. The displacement  
B. The magnitude D. The measurement
- \_\_\_\_\_ 8. Which vectors are identical?  
A. 80 north & 80 east C. 60 north & 60 north  
B. 80 north & 60 north D. 60 north & 60 east
- \_\_\_\_\_ 9. Which vectors are identical?  
A. 25 south & 50 south C. 50 east & 25 east  
B. 50 east & 50 east D. 25 east & 25 west
- \_\_\_\_\_ 10. Helen walked 50 m E, turned, walked 40 m N. Which direction best describes Helen's overall direction of movement?  
A.  $39^\circ$  C.  $141^\circ$   
B.  $129^\circ$  D.  $219^\circ$
- \_\_\_\_\_ 11. Lolita walked 80 m W, turned, walked 25 m N. Which direction best describes Lolita's overall direction of movement?  
A.  $83^\circ$  C.  $197^\circ$   
B.  $163^\circ$  D.  $253^\circ$
- \_\_\_\_\_ 12. Noelle traveled 100 m @  $90^\circ$ , turned 50 m @  $180^\circ$ . Which direction best describes Noelle's overall direction of movement?  
A. North C. Northwest  
B. Northeast D. East