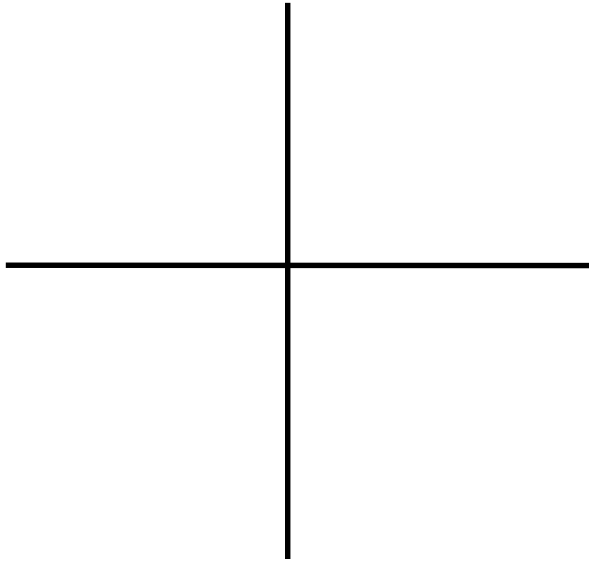
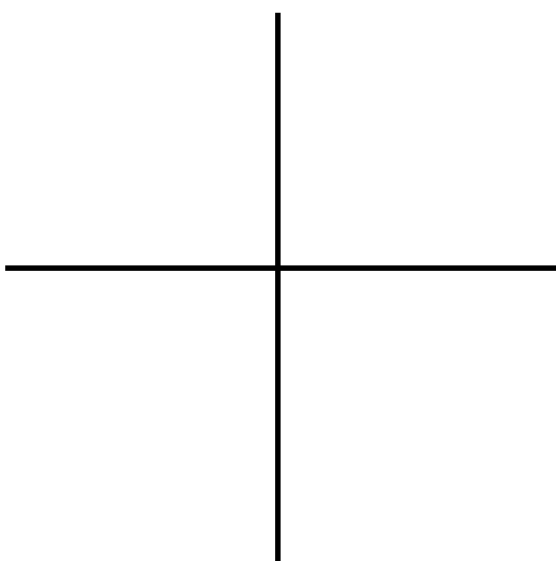
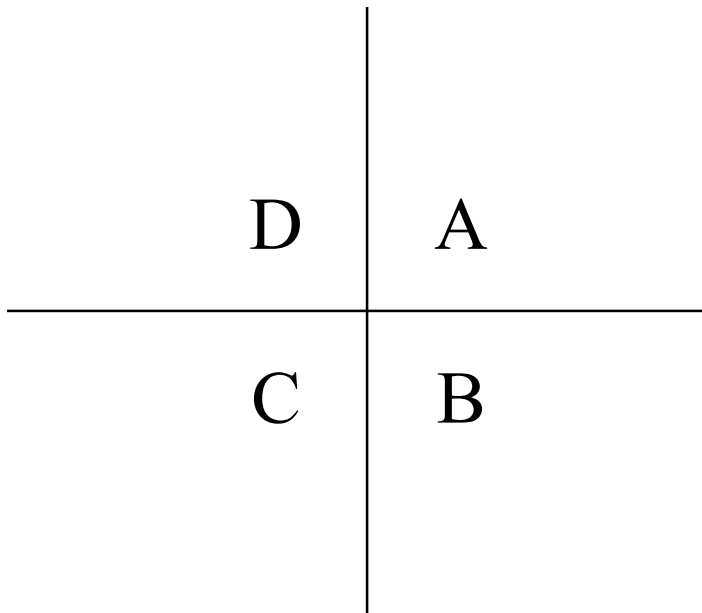


**Name:**

**VECTORS & SCALARS  
Practice**

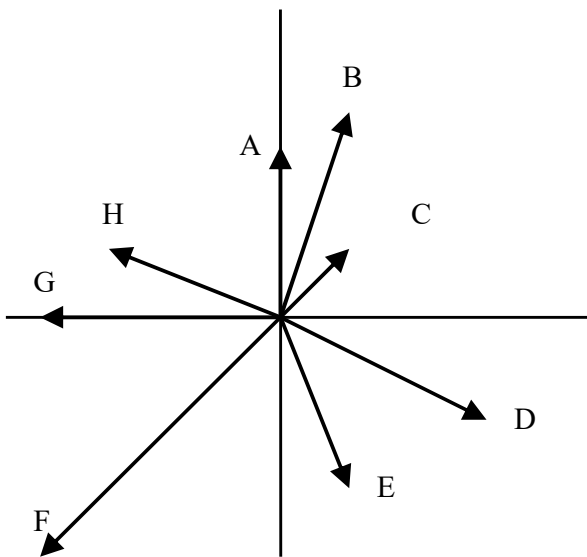
1. A vector is...	2. A scalar is...
3. List physics-related parameters or measurements that are vectors	4. List physics-related parameters or measurements that are scalars
5. Label the geographic frame of reference with the correct directions 	6. Label the angular frame of reference with the correct angles 



**7. Coordinates and Direction.** Identify in which quadrant (A, B, C, or D) each direction lies given geographic or Cartesian directions. Write the correct letter on the line next to the given direction.

Move east, then north	_____	45°	_____
Move north, then west	_____	355°	_____
Move south, then east	_____	30°	_____
Move west, then south	_____	305°	_____
	325°		100°
	120°		225°

**8. Vectors.** Match the letter of the vector on the coordinates with the magnitude & directions listed in the table to the right.

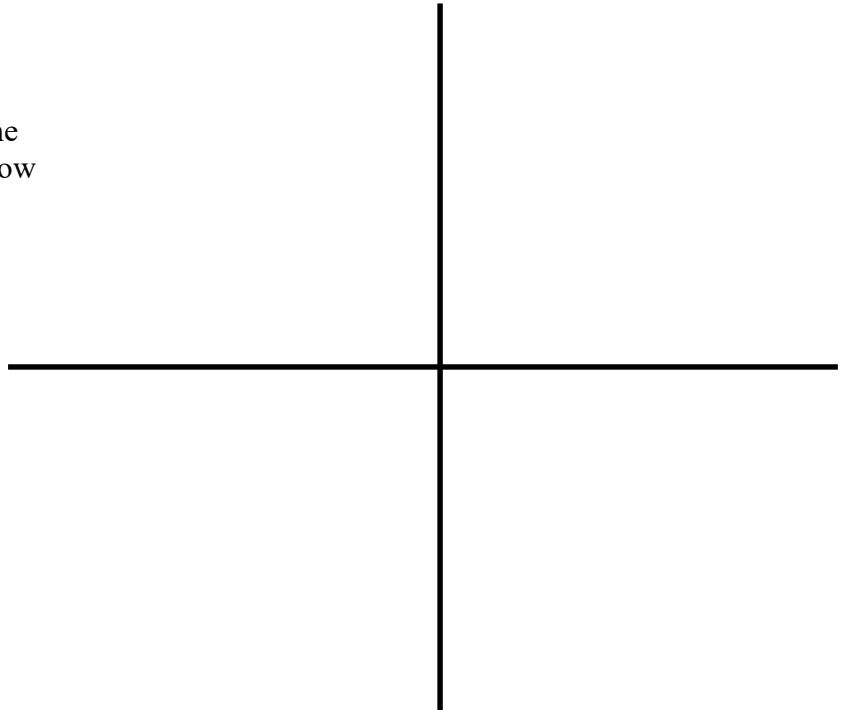


2 km @ 45°	_____	8 km @ 180°	_____
5 km @ 90°	_____	8 km @ 65°	_____
10 km @ 225°	_____	7 km @ 160°	_____
8 km @ 330°	_____	7 km @ 290°	_____

<p>9. List the four positive directions.</p>   	<p>10. List the four negative directions.</p>   
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11. Draw vector arrows that represent the following measurements. The arrows start at the origin. Use a ruler. Note: the length of the arrow is proportional to the magnitude.

- 2 N      4 NW
- 4 S      6 NE
- 6 E      2 SW
- 8 W      8 SE



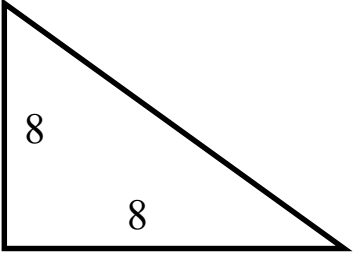
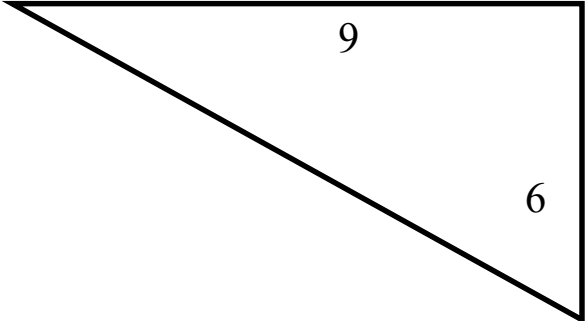
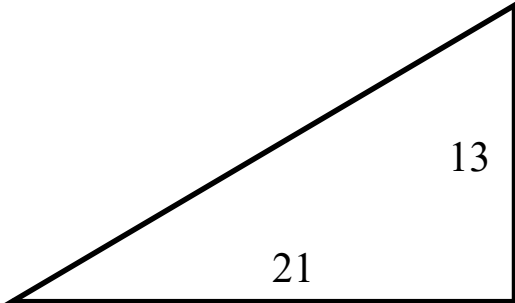
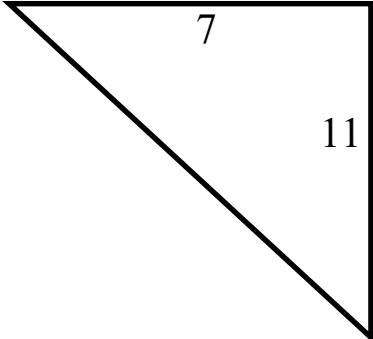
12. Add the following vectors and determine the magnitude of the resultant vector with direction. Write your answer in the box next to the added vectors.

10 N + 10 N		30 W + 10 E	
10 N + 5 S		10 E + 40 W	
10 N + 20 S + 20 S		40 W + 10 E + 25 E	
50 S + 20 N + 10 S		50 E + 10 E + 30 W + 10 W	

13. Calculate the resulting vector (magnitude and direction) using the Pythagorean Theorem. Write your answer in the box next to the added vectors.

10 N + 10 E	
10 N + 5 E	
20 S + 10 W	
10 W + 15 N	

14. Determine the length of the hypotenuse (side C) of the right triangle using the Pythagorean Theorem.

 <p>A right-angled triangle with a vertical leg of length 8 and a horizontal leg of length 8. The right angle is at the bottom-left corner.</p>	
 <p>A right-angled triangle with a horizontal leg of length 9 and a vertical leg of length 6. The right angle is at the top-right corner.</p>	
 <p>A right-angled triangle with a horizontal leg of length 21 and a vertical leg of length 13. The right angle is at the bottom-right corner.</p>	
 <p>A right-angled triangle with a horizontal leg of length 7 and a vertical leg of length 11. The right angle is at the top-right corner.</p>	