Name _____ Period:_____

INSTRUCTIONS: *You are going on a treasure hunt! With the vector set you are given, you are to create a map that will tell the story of a creative treasure hunt.*

PROCEDURE:

1. **Determine a creative theme** for your treasure hunt. The treasure that will be found at the end of the journey and all the landmarks along the way must **follow this theme**—be creative, be unique, and be appropriate!

2. Rough draft—sketch out the vectors roughly to scale and in the correct direction; identify the starting position (and its landmark); identify the types of landmarks you will encounter at the turning point to the next vector; choose an appropriate scale for your poster (the map should take up most of the 11" x 17" paper that you are provided with).

3. Show Mrs. Ciustea your rough draft and receive a stamp for completion, and then she will give you a piece of butcher paper for your final copy.

4. Carefully and creatively complete the final version of the map. Use color, illustrations, and include a title. Use a ruler and a protractor to correctly draw out each vector in the diagram.

5. The map must include the scale used, each vector should be labeled with its length (don't worry about labeling angles on the final copy—just lengths), and it should be obvious what the "treasure" at the end is.

6. Your map must also include the list of vectors that you were given (write them in a box in one corner) and a compass rose.

7. Finally, **in a different color**, draw the <u>resultant</u> displacement vector. *(This connects your starting point to your end point).*

ANALYSIS (COMPLETED INDIVIDUALLY ON A SEPARATE SHEET OF PAPER):

1. With your ruler, measure the length of the resultant vector you drew on the map. Then use your scale to calculate the actual displacement of the vectors you added. Use your protractor to measure the direction of the resultant vector; use a cardinal direction (N,E,S,W) as a reference.

2. Using the **component method for adding vectors**, calculate the x-components and the y-components for each of the vectors. Calculate the x-component and the y-component of the **resultant** vector. Using these components, calculate the magnitude and the direction of the overall resultant displacement vector.

3. How do your 2 results for the magnitude and displacement of the vector compare? What could account for any differences in the values?

1
1) 45 km 40° N of E
2) 25 km 35° E of N
3) 32 Km NW
4) 27 km SW
5) 20 km 5° E of S
6) 40 km 40° S of E

2
1) 45 km 20° W of S
2) 25 km SE
3) 30 km 53° N of E
4) 55 km N
5) 65 km 5° S of W
6) 58 km 80° S of E

3
1) 60 km East
2) 10 km 10° N of W
3) 40 km 10° E of N
4) 38 km 88° N of W
5) 25 km 15° E of S
6) 7 km S

4
1) 15 km 5° W of N
2) 20 km NW
3) 48 km 78° S of W
4) 60 km 65° N of E
5) 25 km 50° S of E
6) 62 km W

5
1) 8 km 65° N of E
2) 35 km N
3) 25 km 50° S of E
4) 38 km SW
5) 18 km 15° W of N
6) 45 km 30° S of E

6
1) 40 km E
2) 45 km 25° N of E
3) 24 km 15° W of N
4) 57 km 20° S of W
5) 33 km S
6) 25 km 17° S of W

7
1) 35 km 10°W of S
2) 25 km 20° E of N
3) 25 km 15° E of S
4) 40 km 95° N of E
5) 10 km NE
6) 28 km W

8
1) 20 km NE
2) 50 km 10° W of S
3) 35 km 10° N of W
4) 42 km 7° E of N
5) 60 km S
6) 12 km 12° N of W

SOLUTIONS:

1
1) 45 km 40° N of E
2) 25 km 35° E of N
3) 32 Km NW
4) 27 km SW
5) 20 km 5° E of S
6) 40 km 40° S of E
R = 40 km @ 10° N of E

2
1) 45 km 20° W of S
2) 25 km SE
3) 30 km 53° N of E
4) 55 km N
5) 65 km 5° S of W
6) 58 km 80° S of E
R = 56 km @ 232° OR 52° S of W

3
1) 60 km East
2) 10 km 10° N of W
3) 40 km 10° E of N
4) 38 km 88° N of W
5) 25 km 15° E of S
6) 7 km S
R = 79 km @ 38° N of E

4
1) 15 km 5° W of N
2) 20 km NW
3) 48 km 78° S of W
4) 60 km 65° N of E
5) 25 km 50° S of E
6) 62 km W
R = 49 km @ 159° OR 21° N of W

5
1) 8 km 65° N of E
2) 35 km N
3) 25 km 50° S of E
4) 38 km SW
5) 18 km 15° W of N
6) 45 km 30° S of E
R = 28 km @ 342° OR 18° S of E

6
1) 40 km E
2) 45 km 25° N of E
3) 24 km 15° W of N
4) 57 km 20° S of W
5) 33 km S
6) 25 km 17° S of W
R = 18 km @ 261° OR 81° S of W

7
1) 35 km 10°W of S
2) 25 km 20° E of N
3) 25 km 15° E of S
4) 40 km 95° N of E
5) 10 km NE
6) 28 km W
R = 19 km @ 143° OR 37° N of W

8
1) 20 km NE
2) 50 km 10° W of S
3) 35 km 10° N of W
4) 42 km 7° E of N
5) 60 km S
6) 12 km 12° N of W
R = 57 km @ 232° OR 52° S of W