1) Which of the following is an accurate statement?

A) The magnitude of a vector can be zero even though one of its components is not zero.

B) It is possible to add a scalar quantity to a vector.

C) Even though two vectors have unequal magnitudes, it is possible that their vector sum is zero.

D) Rotating a vector about an axis passing through the tip of the vector does not change the vector.

E) The magnitude of a vector is independent of the coordinate system used.

Answer: E

Var: 1

2) If  **-** = 0, then the vectors  andhave equal magnitudes and are directed in the opposite directions from each other.

A) True

B) False

Answer: B

Var: 1

3) Under what condition is | **-** **|** = *A + B*?

A) The magnitude of vectoris zero.

B) Vectors  andare in opposite directions.

C) Vectors  andare in the same direction.

D) Vectors  and  **a**re in perpendicular directions.

E) The statement is never true.

Answer: B

Var: 1

4) If *A > B*, under what condition is | **-**  **|** **= *A - B***?

A) The statement is never true.

B) Vectors  andare in opposite directions.

C) Vectors  andare in the same direction.

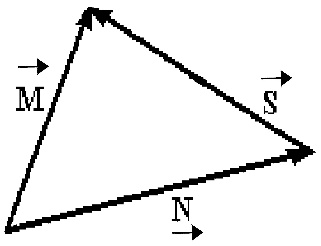
D) Vectors  andre in perpendicular directions.

E) The statement is always true.

Answer: C

Var: 1

5) For the vectors shown in the figure, express vector in terms of vectors and.



Answer:  = -

Var: 1

6) The magnitude of a vector can never be less than the magnitude of one of its components.

A) True

B) False

Answer: A

Var: 1

7) If the magnitude of vector  is less than the magnitude of vector, then the *x* component of  is less than the *x* component of.

A) True

B) False

Answer: B

Var: 1

8) If the eastward component of vector  is equal to the westward component of vectorand their northward components are equal. Which one of the following statements about these two vectors is correct?

A) Vector  is parallel to vector.

B) Vectors  andpoint in opposite directions.

C) Vector  is perpendicular to vector.

D) The magnitude of vector  is equal to the magnitude of vector.

E) The magnitude of vector  is twice the magnitude of vector.

Answer: D

Var: 1

1) You walk 55 m to the north, then turn 60° to your right and walk another 45 m. How far are you from where you originally started?

A) 87 m

B) 50 m

C) 94 m

D) 46 m

Answer: A

Var: 31

5) You walk 53 m to the north, then turn 60° to your right and walk another 45 m. Determine the direction of your displacement vector. Express your answer as an angle relative to east.

A) 63° N of E

B) 50° N of E

C) 57° N of E

D) 69° N of E

Answer: A

Var: 50+

7) The components of vector  are  = + 3.90 and  = -4.00. What is the angle measured counterclockwise from the +x-axis to vector ?

A) 314°

B) 134°

C) 224°

D) 136°

E) 46.0°

Answer: A

Var: 1