Whenever necessary, round off to 3 significant digits.

Given the magnitude and the direction angle of vector v, write the component form of v.

1. ||v|| = 40 ; θ = 85°   v = _____   **2. ||v|| = 120 ; θ = 125° v = _____**

Given the component form of v, find its magnitude and direction angle.

3.   v = ⟨8.2, 3.1⟩ ||v|| = ____   θ = ____   **4.   v = ⟨-2.1, -10.3⟩ ||v|| = ____   θ = ____**

In each case, a vector v is given. Find the component form of the unit vector in the direction of v.

5.   v = ⟨-1.5, 5.8⟩   **6.   v = 3i + 5j**

Solve the following problem.

7.   Forces of 100 pounds and 120 pounds act on an object. If the resultant force has a magnitude of 160 pounds, then what is the angle between the forces?

Solve the following problems. Whenever necessary, round off to three significant digits.

8.   Three forces with magnitudes of 80 pounds, 40 pounds, and 20 pounds act on an object at angles of 50°, 130°, and 200°, respectively (relative to the positive x-axis). What is the magnitude and the direction angle of the resultant force.

9.   A 500 pound weight is supported by the two cables (A and B) shown in the diagram below. Find the tension in each cable. (The diagram is not drawn to scale.)

25°   60°

Cable A   Cable B

500 lbs