If two vectors are given such that $\vec{A} + \vec{B} = 0$, what can you say about the magnitude and direction of vectors A and B?

- A. same magnitude, but can be in any direction
- B. same magnitude, but must be in the same direction
- C. different magnitudes, but must be in the same direction
- D. same magnitude, but must be in opposite directions
- E. different magnitudes, but must be in opposite directions

Given that $\vec{A} + \vec{B} = \vec{C}$, and that $A^2 + B^2 = C^2$, how are vectors A and B oriented with respect to each other?

- A. they are perpendicular to each other
- B. they are parallel and in the same direction
- C. they are parallel but in the opposite direction
- D. they are at 45° to each other
- E. they can be at any angle to each other

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You are adding vectors of length 20 and 40 units. What is the only possible resultant magnitude that you can obtain out of the following choices?

- **A**. 0
- B. 18
- C. 37
- D. 64
- E. 100