Be sure to justify your answers. Use full sentences.

1. A 100-meter dash is run on a track in the direction of the vector \( \vec{v} = 2\vec{i} + 6\vec{j} \). The wind velocity \( \vec{w} \) is \( 5\vec{i} + \vec{j} \) km/hr. The rules say that a legal wind speed measured in the direction of the dash must not exceed 5 km/hr. Will the race results be disqualified due to an illegal wind? Justify your answer.

2. Problem 12 on page 820, Section 12.4. Be sure to justify your answers!
3. Problem 26 on page 821, Section 12.4.

4. Problem 34 on page 821, Section 12.4.
5. Problem 38 on page 821, Section 12.4.