

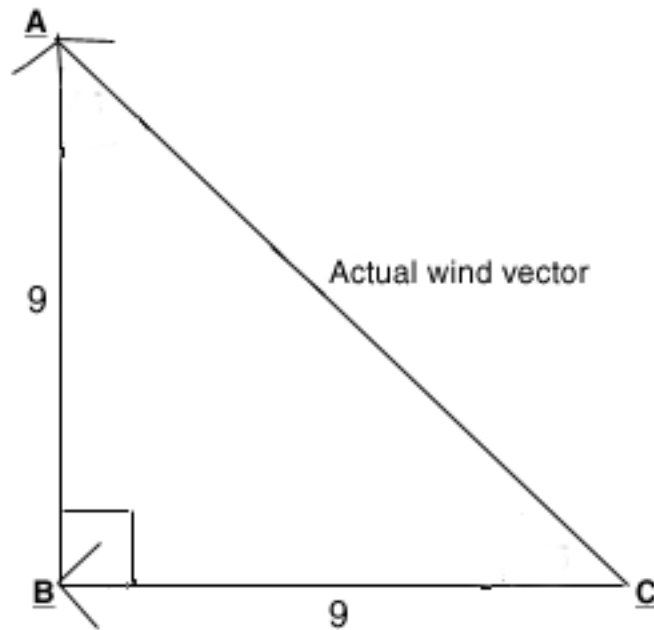
ERTH 260 Spring 2018

Homework 2

Due Friday 9 February 2018

Please answer on back or on separate sheets, in complete sentences where appropriate.

1. How is the rectangular (or cartesian) coordinate system defined? (15 pts)
2. How is the natural coordinate system defined? (15 pts)
3. What are the symbol(s) for the horizontal wind components in the rectangular coordinate system? (10 pts)
4. What are the symbol(s) for the horizontal wind components in the natural coordinate system? (10 pts)
5. What is the meaning of $w = -15 \text{ cm/s}$? Please draw this as a vector on the graph paper attached, with the x and z axes shown. (15 pts)
6. What is the meaning of $u = -6 \text{ m/s}$? Please draw this as a vector on the graph paper attached, with the x and z axes shown. (15 pts)
- 7.



Examine the diagram above. The actual horizontal wind vector depicts a southeast wind at around 13 mph. The actual horizontal wind vector can be broken down into its two components. Which of the following choices is correct? (10 pts)

- i) $u = 9$ mph, $v = -9$ mph
 - ii) $u = 9$ mph, $v = -9$ mph
 - iii) $u = 9$ mph, $v = 9$ mph
 - iv) $u = -9$ mph, $v = 9$ mph
8. A meteorologist reports the wind at a station as a $v = -10$ mph. This means that the wind at the station is (10 pts)
- i) A south wind at 10 mph.
 - ii) A north wind at 10 mph.
 - iii) An east wind at 10 mph.
 - iv) A west wind at 10 mph

