ERTH 465 Name _____
Fall 2017

Inclass Exercise #1 Key: Computing Wind Components
50 points; Turn in at End of Class Period

1. What are the u and v components of a wind with a meteorological direction of 320 and a speed of 10 m/s?

320 = wwd; md = 270 -320 = -50; -50 +360 = 310 = 5.41 radians

$310^\circ \times \pi / 180^\circ$
= 1.7777777778 π rad
= 5.41 rad

ws = 10

u = 10 cos 5.41 = 10 (0.6424) = 6.4 m/s

v = 10 sin 5.41 = 10 (-0.7664) = -7.6 m/s

Does this make sense? Yes. A wind at 320 is a northwest wind…that should have a positive (west) wind component and a negative (north) wind component.

2. What are the u and v components of a wind with a meteorological direction of 150 and a speed of 18 m/s?

150 = wwd; md = 270 – 150 = 120; 120 = 2.09 radians

$150° \times \pi / 180°$
= 0.83333333333π rad
= 2.09 rad

ws = 18

u = 18 cos 2.09 = 18 (-0.4962) = -8.9 m/s

v = 18 sin 2.09 = 18 (0.87) = 15.6 m/s

Does this make sense? Yes. A wind at 150 is a southeast wind…that should have a negative (west) wind component (or an easterly wind component) and a positive (southerly) v component..