MATH 253 – WORKSHEET 2
VECTORS AND THE DOT PRODUCTS

1. Vectors and the Dot Product

(1) The wind is blowing eastward at 50km/h. A plane is travelling to the northeast. If the airspeed of the plane is 353km/h, what is its speed relative to the ground? [Note: $353 \cdot \frac{\sqrt{2}}{2} \approx 250$]?

(2) What is the compass heading of the plane? (this is the angle between North and the direction of the plane)

(3) A pyramid is built from three $90° - 45° - 45°$ triangles, together with an equilateral triangle as base. What angle does a side make with the base?