Exercise 1
Calculate the length of $\mathbf{u} = (1, -1, -1)$, the distance between $\mathbf{u}$ and $\mathbf{v} = (1, 0, 1)$ and the angle between $\mathbf{u}$ and $\mathbf{v}$

(i) with respect to the standard dot product;
(ii) with respect to the inner product given by $\langle \mathbf{u}, \mathbf{v} \rangle = u_1v_1 + 2u_2v_2 + 3u_3v_3$.

Exercise 2
Which of the following bases are orthogonal and which are orthonormal?

(i) $(1, 0), (0, -14)$;
(ii) $(0, 0, 2), (1, -1, 0), (1, 1, 0)$;
(iii) $(-1, 0, 0), (0, \frac{3}{5}, \frac{4}{5}), (0, -\frac{4}{5}, \frac{3}{5})$;