

Math 53 (Multivariable Calculus), Section 102 & 108

Week 4, Wednesday

Sep 14, 2022

For the other materials: seewoo5.github.io/teaching/2022Fall

1. Find unit vectors that are orthogonal to $\langle 1, 1, 0 \rangle$ and $\langle 1, 0, 1 \rangle$.
2. Let $\mathbf{r} = \langle x, y \rangle$, $\mathbf{a} = \langle 1, 1 \rangle$, $\mathbf{b} = \langle 1, -1 \rangle$. Show that the vector equation $(\mathbf{r} - \mathbf{a}) \cdot (\mathbf{r} - \mathbf{b}) = 0$ represents a circle.
3. For three points $P(1, 0, 1)$, $Q(-2, 1, 3)$, $R(4, 2, 5)$, find a nonzero vector orthogonal to the plane through the points P , Q , and R . Find the area of triangle PQR .