Math 32A - Quiz 1, Thursday

October 16, 2025

1 Preamble

This is the first quiz of the class, you may not use any outside materials besides your "cheat sheet" on a standard notecard. Irrational numbers do not need to be expanded (e.g. 2π is preferred as an answer to 6.28... and $\cos(27^\circ)$ is preferred to .891...). You have 20 minutes to answer all questions, show your work.

2 Problems

1. Let
$$\vec{\ell}_1(t) = (1, 2, 3) + t \cdot (2, -1, 1)$$
$$\vec{\ell}_2(t) = (3, 1, 2) + s \cdot (1, 1, -1)$$
be two lines. Find their intersection or show that a point of intersection does not exist.

2. Let $\vec{u} = (1, 2, -1), \vec{v} = (2, -1, 3)$.

   (a) Find the area of the parallelogram with sides given by the vectors $\vec{u}, \vec{v}$.

   (b) Find an equation for the plane containing the line $\vec{L}_1(t) = t \cdot \vec{u}$ and the line $\vec{L}_2(t) = t \cdot \vec{v}$.

Additional paper for work: