HW 1  
Math 261, S18

Please see the course syllabus for details on how to turn in your homework assignments. This one is due at the beginning of your class on **Friday, January 26**.

1. Do you understand that the homework in this class is not intended to be comprehensive preparation for the exams and that you really should try the suggested homework problems and exam practice problems, too? (Yes or no, please.)

2. Find a *unit* vector pointing in the direction of \( \mathbf{v} = \langle 4, -3, 0 \rangle \).

3. Compute the projection of \( \langle 2, 1, 1 \rangle \) onto \( \langle 3, 2, 0 \rangle \).

4. Compute the area of the triangle formed by vectors \( \langle 2, 1, 1 \rangle \) and \( \langle 3, 2, 0 \rangle \), along with the line segment connecting their endpoints.

5. Some shape is described by the equations \( \{ x = 2, y = 5 \} \) in \( \mathbb{R}^3 \) (e.g., a circle, a line, a plane, etc.). Please name both the shape *and* a point that the shape goes through.

6. Sketch a circle of radius 2 that lies in the plane \( y = 5 \) and is centered at \( (1, 5, 3) \). (We don’t require sketches on exams, but sketching and understanding 3D figures are important skills in Calc 3.)