Math 195 Section 59 Practice Midterm

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Abstract

You will have 50 minutes to complete the midterm. You ay use books, notes, and any other print source but absolutely nothing human or electronic.

1. Find the angle between $\mathbf{v} =< 1, 2, 3 >$ and $\mathbf{w} =< 1, 1, 1 >$

For Problems 2-4 consider the points $P(1, 1, 1)$, $Q(1, -1, 1)$ and $R(1, -1, -1)$

2. Find a unit vector normal to the plane containing P, Q, and R.

3. Find an equation for the plane containing P, Q, and R.

4. Find the area of the triangle with vertices P, Q, and R.

5. Let $\mathbf{w} =< 2, 3, 4 >$ and $\mathbf{a} =< 1, 2, 3 >$. Find vectors $\mathbf{u}$ and $\mathbf{v}$ with $\mathbf{u}$ parallel to $\mathbf{a}$, $\mathbf{v}$ perpendicular to $\mathbf{a}$ and $\mathbf{w} = \mathbf{u} + \mathbf{v}$.