MATH 2415 TEST 1

Name: _____

Testing conditions:

- 50-minute time limit;
- notes, books, and calculators are allowed;
- inter-student communication, telecommunication, and internet access are not allowed.

Date: Feb. 17, 2014.

Exercise	Point Possible	Score
1	50	
2	50	
Total	100	

1. **[50 points]** Suppose that $|\mathbf{u}| = 4$, $|\mathbf{v}| = 5$, and the angle between $\mathbf{u}$ and $\mathbf{v}$ is 2 radians.

- Compute $|\mathbf{u} \times \mathbf{v}|$.
- Compute $\mathbf{u} \cdot \mathbf{v}$.
- Compute $|\mathbf{u} + \mathbf{v}|$.

2. **[50 points]** Let L_1 be the line through the point $(0, 0, 1)$ that is parallel to $\langle 2, 0, 3\rangle$. Let L_2 be the line parametrically defined by $x = t; y = 4-t; z = 1-2t$. Find the distance between these lines.