Name _____ Score _____ Teacher _____ Date _____

Vectors in the Plane

Work in two dimensions. Give exact magnitudes and angles when possible, and show vector operations component by component.

1. **Treat u and v as successive displacements. u = <9, -3> and v = -1i + 0.5j; find u + v, u - v, and 2u.**

2. **Find the resultant u + v for u = 1.5i + 2j and v = <-2, 2>.**

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Vectors in the Plane

Work in two dimensions. Give exact magnitudes and angles when possible, and show vector operations component by component.

3. **Two displacement directions are u = <4, -5> and v = -1i + 1.5j. Compute u dot v and decide whether they are perpendicular; if not, give the included angle to the nearest hundredth of a degree.**

4. **Find a unit vector in the direction of v = 2.5i + 3j.**

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Vectors in the Plane

Work in two dimensions. Give exact magnitudes and angles when possible, and show vector operations component by component.

5. **Find the exact magnitude and direction angle (0° <= theta < 360°) of the displacement = <6, -2>. Round a nonstandard direction angle to the nearest hundredth of a degree.**

6. **A vector starts at P(-1, 1) and ends at Q(2.5, 2.5). Write it in both component and i, j form.**

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Vectors in the Plane

Work in two dimensions. Give exact magnitudes and angles when possible, and show vector operations component by component.

7. **Two displacement directions are u = <8, -4> and v = -1i + 0.5j. Compute u dot v and decide whether they are perpendicular; if not, give the included angle to the nearest hundredth of a degree.**

8. **A vector starts at P(1, 0) and ends at Q(5.5, 2.5). Write it in both component and i, j form.**