

**** Please show all work on notebook paper! ****

Write each vector in trig form. (Use degrees and round to the nearest hundredth.)

1. $\vec{u} = \langle -8, 3 \rangle$ 2. $\vec{b} = -11\vec{j}$ 3. $\vec{d} = -2\vec{i} - 5\vec{j}$

4. \vec{MN} with point M (-4, 8) and point N (2, -9)

Write each vector in component form and then find the magnitude and direction of each vector. Write EXACT answers—no decimals!! Use degrees for the angles.

5. $\vec{v} = 5(\cos 30^\circ \vec{i} + \sin 30^\circ \vec{j})$
Component form _____ Magnitude _____ Direction _____

6. $\vec{v} = 8(\cos 135^\circ \vec{i} + \sin 135^\circ \vec{j})$
Component form _____ Magnitude _____ Direction _____

Find the following. Write your answer in component form. Round to the nearest 100th.

7. $2(\cos 40^\circ \vec{i} + \sin 40^\circ \vec{j}) + 3(\cos 110^\circ \vec{i} + \sin 110^\circ \vec{j})$

8. $10(\cos 219^\circ \vec{i} + \sin 219^\circ \vec{j}) - 6(\cos 301^\circ \vec{i} + \sin 301^\circ \vec{j})$

Find the vector \mathbf{v} with the given magnitude and the same direction as vector \mathbf{u} . Write your answer two ways--in trig form and in the same form as the original problem. Round your angle to the nearest 100th, if necessary. Use $[0^\circ, 360^\circ)$.

9. $\|\mathbf{v}\| = 5, \quad \mathbf{u} = \langle 3, 3 \rangle$

10. $\|\mathbf{v}\| = 3, \quad \mathbf{u} = \langle 4, -4 \rangle$

11. $\|\mathbf{v}\| = 10, \quad \mathbf{u} = 2\mathbf{i} - 3\mathbf{j}$

12. $\|\mathbf{v}\| = 8, \quad \mathbf{u} = -2\mathbf{i}$

Writing Vectors in Trig Form WS – Answers:

1) $\sqrt{73}\langle \cos 159.44^\circ, \sin 159.44^\circ \rangle$

2) $11(\cos 270^\circ \vec{i} + \sin 270^\circ \vec{j})$

3) $\sqrt{29}(\cos 248.2^\circ \vec{i} + \sin 248.2^\circ \vec{j})$

4) $5\sqrt{13}\langle \cos 289.44^\circ, \sin 289.44^\circ \rangle$ or $5\sqrt{13}(\cos 289.44^\circ \vec{i} + \sin 289.44^\circ \vec{j})$

5) $\left\langle \frac{5\sqrt{3}}{2}, \frac{5}{2} \right\rangle$; 5; 30°

6) $\langle -4\sqrt{2}, 4\sqrt{2} \rangle$; 8; 135°

7) $\langle 0.51, 4.10 \rangle$

8) $\langle -10.86, -1.15 \rangle$

9) $5\langle \cos 45^\circ, \sin 45^\circ \rangle = \left\langle \frac{5\sqrt{2}}{2}, \frac{5\sqrt{2}}{2} \right\rangle = \langle 3.54, 3.54 \rangle$

10) $3\langle \cos 315^\circ, \sin 315^\circ \rangle = \left\langle \frac{3\sqrt{2}}{2}, -\frac{3\sqrt{2}}{2} \right\rangle = \langle 2.12, -2.12 \rangle$

11) $10(\cos 303.69^\circ \vec{i} + \sin 303.69^\circ \vec{j}) = 5.55\vec{i} - 8.32\vec{j}$

12) $8(\cos 180^\circ \vec{i} + \sin 180^\circ \vec{j}) = -8\vec{i}$