

Quiz 2 (20 pts.), Name: _____

1. **5 pts.** Write the geometric number $z = 1 - \sqrt{3}\mathbf{e}_{12}$ in polar form.

$$z = 1 - \sqrt{3}\mathbf{e}_{12} = 2e^{-\frac{\pi}{3}}\mathbf{e}_{12}.$$

2. **5 pts.** Write the geometric number $w = 5 - 4\mathbf{e}_1$ in polar form.

$$w \doteq 3e^{-1.09861}\mathbf{e}_1.$$

3. **10 pts.** For the vectors $\mathbf{v}_1 = 2\mathbf{e}_1 - 3\mathbf{e}_2$ and $\mathbf{v}_2 = 4\mathbf{e}_1 + 3\mathbf{e}_2$, find

a) $\mathbf{v}_1 \cdot \mathbf{v}_2 = -1.$

b) $\mathbf{v}_1 \wedge \mathbf{v}_2 = 18\mathbf{e}_{12}.$

c) Find $\mathbf{v}_1^{-1} = \frac{2\mathbf{e}_1 - 3\mathbf{e}_2}{13}$

d) Find $\mathbf{v}_1\mathbf{v}_2\mathbf{v}_1.$

$$\mathbf{v}_1\mathbf{v}_2\mathbf{v}_1 = -56\mathbf{e}_1 - 33\mathbf{e}_2.$$