For practice only. Not to be submitted.

1. Given $z = 3 - 4i$ and $w = -1 + 7i$, evaluate each of the following.

   (a) $z + w$

   (b) $z - w$

   (c) $z \cdot w$

   (d) $\dfrac{w}{z}$

   (e) w^2

   (f) $|z|$

2. Given vectors $\mathbf{v} = \begin{bmatrix} 3i \\ 7 \\ 4 + i \end{bmatrix}$ and $\mathbf{w} = \begin{bmatrix} -2i \\ 5i \\ 1 - 6i \end{bmatrix}$ find each of the following.

   (a) $\mathbf{v} \cdot \mathbf{w}$

   (b) $\|\mathbf{v}\|$

   (c) a unit vector parallel to $\mathbf{v}$