Algebra II
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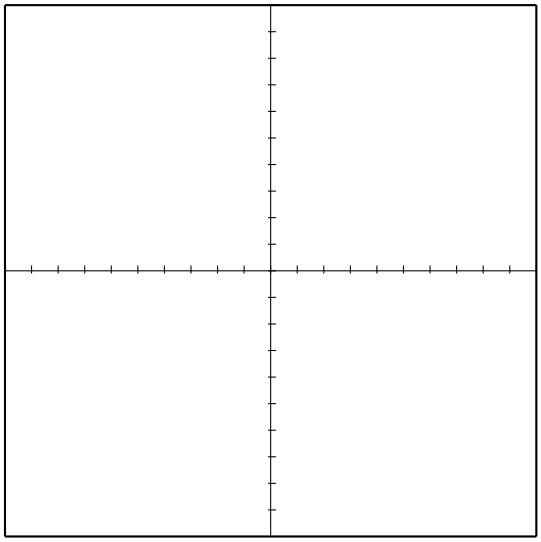
Activity 1012
Tuesday, October 12, 2021

Problem 1. Let $z_1 = 6 + 3i$ and $z_2 = 2 - 5i$, and $z_3 = z_1 + z_2$. Plot all of the following complex numbers:

$$z_1, \quad z_2, \quad z_3, \quad -z_1, \quad -z_2, \quad -z_3, \quad \overline{z_1}, \quad \overline{z_2}, \quad \overline{z_3}.$$



Problem 2. Compute the following.

(a) $(2 + 8i) + (3 - 5i)$

(b) $(3 + 7i) \cdot (3 - 5i)$

(c) $(1 + i)^2$

(d) $|5 + 12i|$

(e) $\overline{8 - 11i}$

(f) i^7

Problem 3. Let $z = 3 + 4i$ and $w = 7 - 2i$. Compute the following.

(a) $z + w$

(b) $z - w$

(c) zw

(d) $\overline{z}$ and $\overline{w}$

(e) $|z|$ and $|w|$

(f) $z + \overline{z}$ and $w + \overline{w}$

(g) $z\overline{z}$ and $w\overline{w}$

(h) $1/w$

(i) z/w

(j) w/z