Chapter 23: Complex Numbers

Worksheet to accompany

David Feldman, *Chaos and Fractals: An Elementary Introduction*,
Oxford University Press, 2012

Consider the following numbers:

$$z_1 = 1 + i \,, \quad z_2 = -2 + 2i \,, \quad z_3 = -3 \,. \tag{1}$$

1. Compute the following:

   (a) $z_1 + z_2$
   (b) $z_2 - z_3$
   (c) $z_3 + z_1$
   (d) $2z_2$
   (e) $-3z_1$

2. Compute the following:

   (a) $z_1 z_2$
   (b) $z_2 z_1$
   (c) $z_1 z_3$
   (d) z_2^2
   (e) z_1^2

3. Plot the three numbers z_1, z_2, z_3 on the complex plane.

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Consider the following numbers:

$$z_1 = 1 + i \,, \quad z_2 = -2 + 2i \,, \quad z_3 = -3 \,. \tag{2}$$

1. Compute the following:

   (a) $z_1 + z_2$
   (b) $z_2 - z_3$
   (c) $z_3 + z_1$
   (d) $2z_2$
   (e) $-3z_1$

2. Compute the following:

   (a) $z_1 z_2$
   (b) $z_2 z_1$
   (c) $z_1 z_3$
   (d) z_2^2
   (e) z_1^2

3. Plot the three numbers z_1, z_2, z_3 on the complex plane.