Math 20C – Swanson – Fall 2019
Homework 1
Due Monday, 10/7/19 at 11:59pm

- The graded part of the homework is on WebAssign.
- The problems below are also assigned and you are responsible for doing them, but they will not be collected or graded.

1. Compute the vector (x, y) with length 10 that makes an angle 20° counterclockwise from the $+x$ axis.

2. For each of the following vectors, determine its length and its angle (in degrees) counterclockwise from the $+x$ axis:

   (a) $3\hat{\imath} + 4\hat{\jmath}$

   (b) $-3\hat{\imath} + 4\hat{\jmath}$

   (c) $3\hat{\imath} - 4\hat{\jmath}$

   (d) $-3\hat{\imath} - 4\hat{\jmath}$

3. Let $A = (1, 3)$, $B = (7, -6)$, $C = (4, 2)$.
   (a) Find the point D so that $\overrightarrow{AB} = \overrightarrow{CD}$.
   (b) On the line segment $\overline{AB}$, find the point two-thirds of the way from A to B.
   (c) Let E, F, G, H represent points. Simplify each expression:
      (a) $\overrightarrow{EF} + \overrightarrow{FG}$
      (b) $\overrightarrow{EF} - \overrightarrow{EG}$
      (c) $\overrightarrow{EF} + \overrightarrow{FG} + \overrightarrow{GH} + \overrightarrow{HE}$.