> Math 20C – Swanson – Winter 2021
> Homework 1
> Due Tuesday, 1/19/21 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) counter-clockwise 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) $\overrightarrow{EF} + \overrightarrow{FG} + \overrightarrow{GH} + \overrightarrow{HE}$.