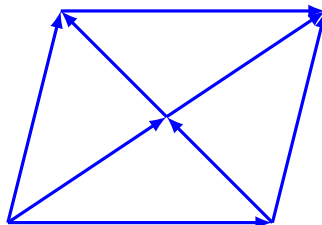**Math 242 - Homework 1**   **Due Thursday, September 11**
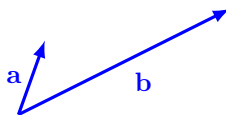
Exercises from the Book

- Chapter 1.1# 2, 3, 5

- Chapter 1.2# 1

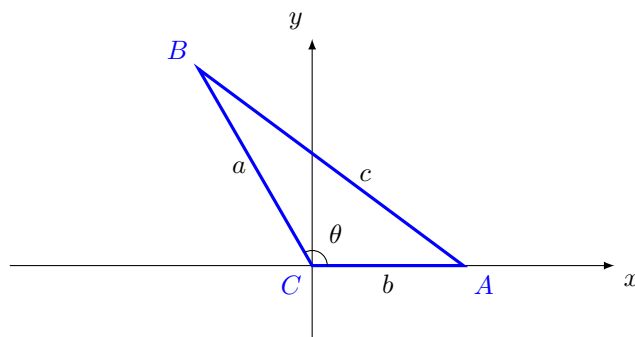- Chapter 1.3# 3, 7

Additional Exercises

1. How many *different* vectors are there in the figure below?

2. Using the vectors in the figure below, draw the following vectors (i) $2\mathbf{a} + \mathbf{b}$, (ii) $-\frac{1}{2}\mathbf{b}$, and (iii) $\mathbf{b} - 3\mathbf{a}$.

3. **The Law of Cosines.** Consider the triangle $\triangle ABC$ shown below.

   (a) Find rectangular coordinates for A and B using a, b, and θ.

   (b) Find the distance between A and B, i.e., find a formula for c.

   (c) Use your answer to (b) to verify the Law of Cosines: $a^2 + b^2 - 2ab\cos\theta = c^2$.