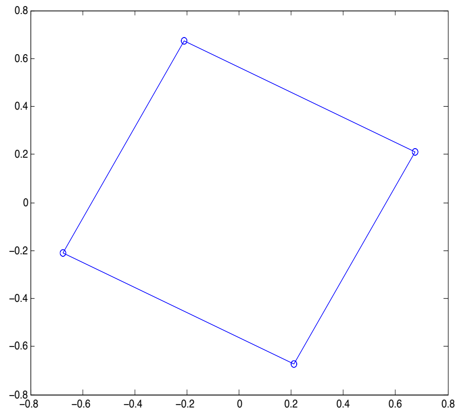


Figure 21.1: Drawing of the graph from Example 1.

The graph of Example 1 is shown in Figure 21.1. The function `eigs(L)` computes the six largest eigenvalues of $L$ in decreasing order, and corresponding eigenvectors. It turns out that $\lambda_2 = \lambda_3 = 2$ is a double eigenvalue.

*Example* 2. Consider the graph $G_2$ shown in Figure 20.3 given by the adjacency matrix

$$A = \begin{pmatrix} 0 & 1 & 1 & 0 & 0 \\ 1 & 0 & 1 & 1 & 1 \\ 1 & 1 & 0 & 1 & 0 \\ 0 & 1 & 1 & 0 & 1 \\ 0 & 1 & 0 & 1 & 0 \end{pmatrix}.$$

We use the following program to compute $u_2$ and $u_3$:

```
A = [0 1 1 0 0; 1 0 1 1 1; 1 1 0 1 0; 0 1 1 0 1; 0 1 0 1 0];
D = diag(sum(A));
L = D - A;
[v, e] = eig(L);
gplot(A, v(:, [2 3]))
hold on
gplot(A, v(:, [2 3]),'o')
```

The function `eig(L)` (with no `s` at the end) computes the eigenvalues of $L$ in increasing order. The result of drawing the graph is shown in Figure 21.2. Note that node $v_2$ is assigned to the point $(0, 0)$, so the difference between this drawing and the drawing in Figure 20.3 is that the drawing of Figure 21.2 is not convex.

*Example* 3. Consider the ring graph defined by the adjacency matrix $A$ given in the `Matlab` program shown below: