•• P14.5 Write a class `Polynomial` that stores a polynomial such as

$$p(x) = 5x^{10} + 9x^7 - x - 10$$

as a linked list of terms. A term contains the coefficient and the power of x. For example, you would store $p(x)$ as

$$(5,10),(9,7),(-1,1),(-10,0)$$

Supply member functions to add, multiply, and print polynomials. Supply a constructor that makes a polynomial from a single term. For example, the polynomial `p` can be constructed as

```
Polynomial p(Term(-10, 0));
p.add(Polynomial(Term(-1, 1)));
p.add(Polynomial(Term(9, 7)));
p.add(Polynomial(Term(5, 10)));
```

Then compute $p(x) \times p(x)$.

```
Polynomial q = p.multiply(p);
q.print();
```

•• P14.6 Using a queue of vectors, implement a non-recursive variant of the merge sort algorithm as follows. Start by inserting vectors of length 1 for each element into the queue. Keep removing pairs of vectors from the queue, merging them into a single vector, and adding the result back into the queue. Stop when the queue has size 1.

••• P14.7 In a paint program, a "flood fill" fills all empty pixels of a drawing with a given color, stopping when it reaches occupied pixels. In this exercise, you will implement a simple variation of this algorithm, flood-filling a 10×10 array of integers that are initially 0.

Prompt for the starting row and column.
Push the (row, column) pair on a stack.

You will need to provide a simple `Pair` class.

Repeat the following operations until the stack is empty:

Pop off the (row, column) pair from the top of the stack.
If it has not yet been filled, fill th corresponding array location with numbers 1, 2, 3, and so on (to show the order in which the square is filled.)
Push the coordinates of any unfilled neighbors in the north, east, south, or west direction on the stack.

When you are done, print the entire array.

••• P14.8 Repeat Exercise ••• P14.7, but use a queue instead.

••• P14.9 Modify the expression calculator of Section 14.6.3 to convert an expression into reverse Polish notation. *Hint:* Instead of evaluating the top and pushing the result, append the instructions to a string.