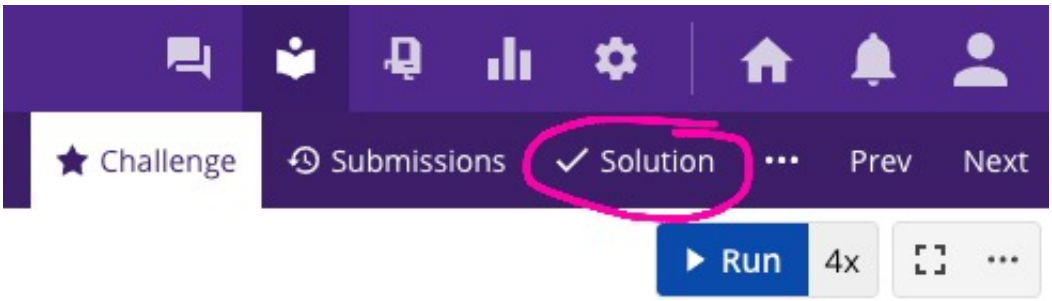
Welcome to Karel

Intro to Worked Examples

Happy first day of Code in Place!

Worked Examples are Karel challenges — with solutions written up by the Teaching Team.

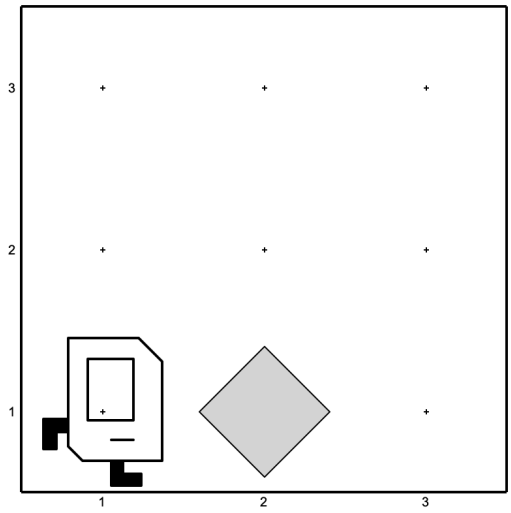
You can try solving them yourself. You can always hit the **Solution** button to see how we solved it:



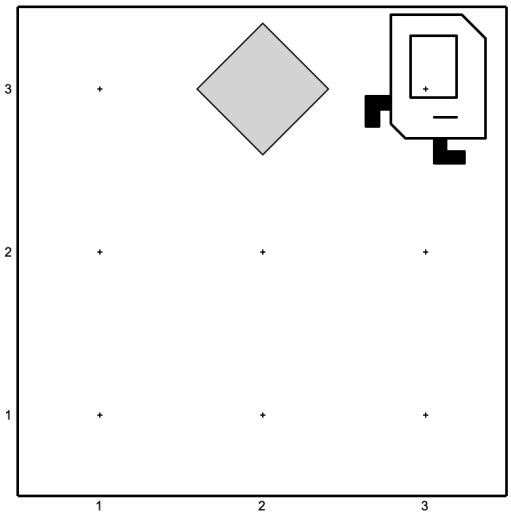
Use the worked examples as a way to learn. When you are ready, try the Assignment. Enjoy coding in Karel!

Move Beeper

Karel will start out in a world with 3 rows and 3 columns, in front of a beeper, like so:

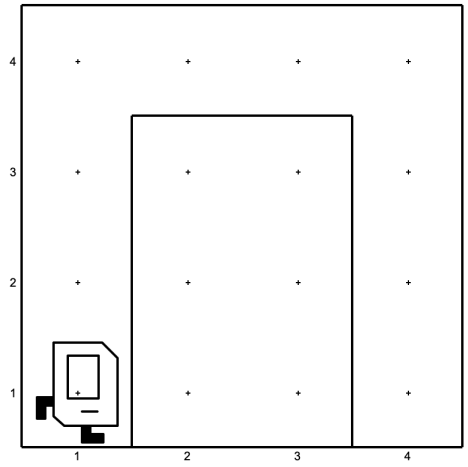


Your job is to make Karel pick up the beeper, move to the top of the world, put the beeper down at the top of column 2, and then end up in the top right corner, so that the end result looks like this:

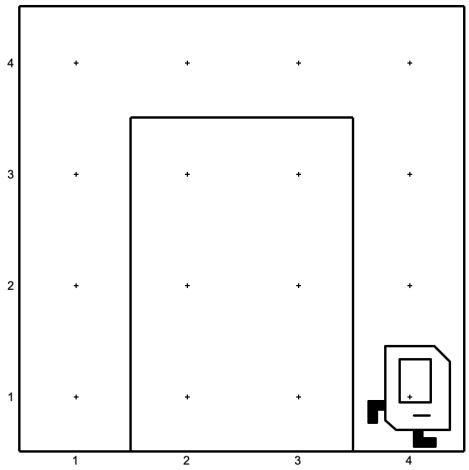


Archway

Karel will be in a world with an archway like so:



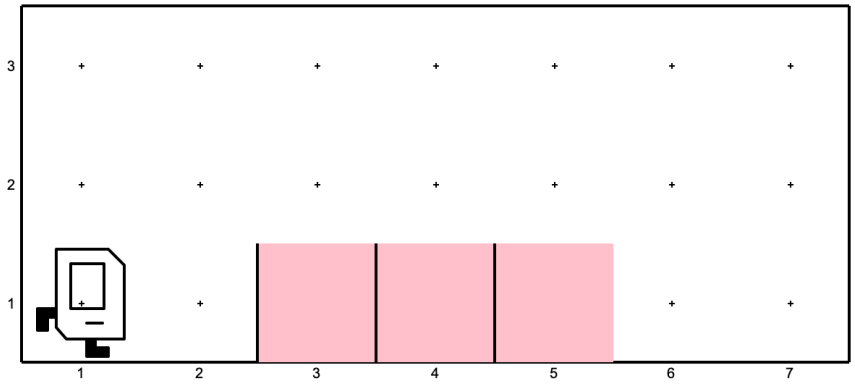
Write a program which will move Karel up and over the archway, so Karel ends up on the right side of it facing East, like this:



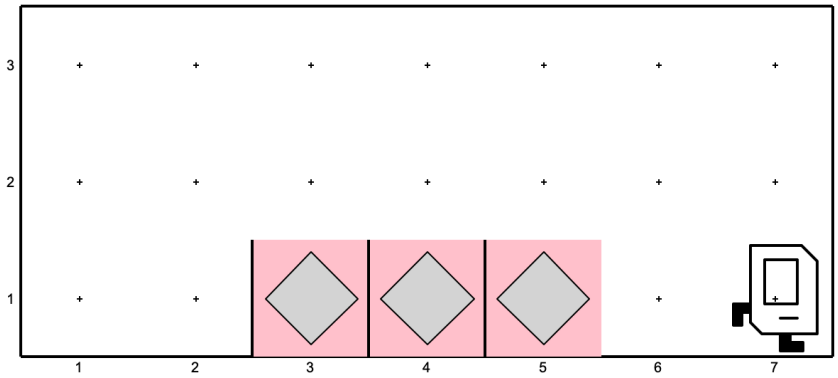
It may be helpful to write a helper function which moves Karel three times, which you can use to traverse each side of the arch.

Obstacles

Karel starts in the bottom left corner of a world with three "obstacles" (vertical walls in the bottommost row), and three squares painted pink, like so:



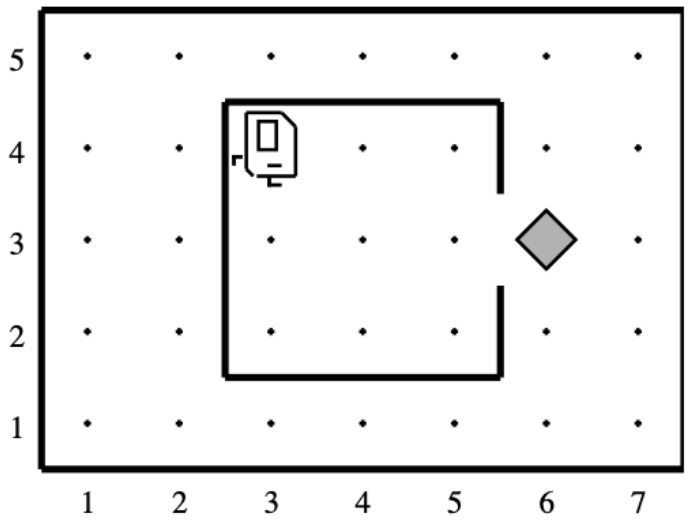
Your job is to write code which gets Karel over the obstacles and puts beepers in the pink squares, and moves Karel to the bottom right corner of the world. The end goal looks like this:



Note: if you run `put_beeper()` and it says “No beepers in bag”, your world file is likely out of date! Save a copy of your code somewhere safe and then click the ... > Reset to Scaffold button in the top right to update everything automatically.

Collect Newspaper

Suppose that Karel has settled into its house, which is the square area in the center of the world shown below. During this time, you might correctly surmise that Karel is sheltering-in-place.



Karel starts off in the northwest corner of its house as shown in the diagram. The problem you need to solve is to get Karel to collect the newspaper. The newspaper, like all objects in Karel's world, is represented by a beeper. You must get Karel to pick up the newspaper located outside the doorway and then to return to its initial position.

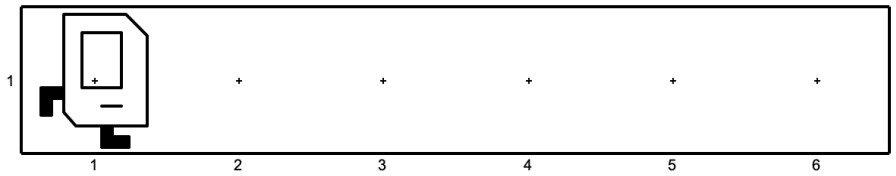
This exercise is simple and is meant to help you get you started programming with Karel. You can assume that every part of the world looks just as it does in the diagram: the house is exactly this size, the door is always in the position shown, and the beeper is just outside the door. Thus, all you have to do is write the sequence of commands necessary to have Karel:

- Move to the newspaper,
- Pick it up, and
- Return to its starting point.

Although the program does not have many lines of code, it is still worth getting some practice with decomposition. In your solution, include a function for each of the three steps shown in the outline above.

Rainbow

Make Karel paint a rainbow! Karel will start in the left corner of a world with 1 row and 6 columns, like so:



Karel should paint the squares with, in order: the colors `RED`, `ORANGE`, `YELLOW`, `GREEN`, and `BLUE`, and then Karel should move to end in the rightmost spot. The result should look like this: