

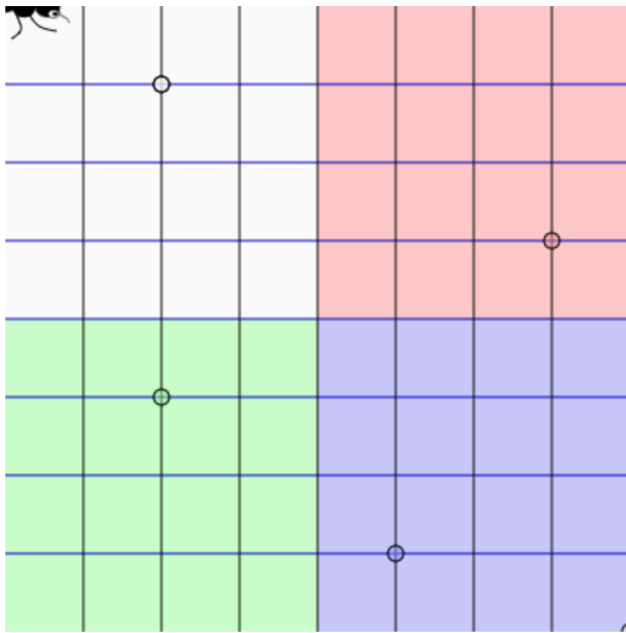
# Processing: Marching ant game

Goal: practicing 2D coordinates and changing variables

Peabody Charter 5th grade

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Today we will work with an existing program that allows you to control where an ant travels by changing the value of variables in the program. Our goal is to practice modifying the value of variables to demonstrate an understanding of 2D coordinates.



To start with you should download the marching ant program.

When the program starts, the ant is at the origin (0, 0) and it needs to collect 5 different crumbs in sequence at (x1, y1), (x2, y2), (x3, y3), (x4, y4) and the far corner (x5, y5).

TODO for students: Change the value of variables that represent each crumb's x and y coordinates so the ant reaches all the crumbs on the grid.

The ant must pick up the crumbs in a certain order starting at the origin:

- #1) (x1, y1) upper left quadrant (white) ->
- #2) (x2, y2) upper right quadrant (pink) ->
- #3) (x3, y3) bottom right quadrant (green) ->
- #4) (x4, y4) bottom left quadrant (blue) ->
- #5) (x5, y5) bottom right corner of the window

Change the value in the code for example for these lines of code:

```
x1 = 0;  
y1 = 0;  
x2 = 0;  
y2 = 0; ...
```

**Note that after you change one point's variables (both x and y), run the code to see if you got it correct.** The ant will only move when the values are correct. When the ant collects the last crumb it will do a special animation for you! Once you get the easy mode to work try, changing the variable "hard" to true.