Leaf Class

1) Create four fields for an individual Leaf:
   I. *An integer, numLeaves, shared by all leaves to keep track of how many total leaves have been built.*
   II. *An integer, timer, to represent how long before the leaf will begin falling.*
   III. *An integer, dx, to represent how far left/right it will move.*
   IV. *A boolean, fallingRight, representing if it is currently falling left or falling right.*

2) In the constructor for Leaf, add the following:
   I. *Set the Image to a random picture, Leaf1.png, Leaf2.png, Leaf3.png, or Leaf4.png. Do this without using an if-statement.*
   II. *Set the rotation of the leaf to a random number from 0-359.*
   III. *Set the time to fall field's value to a random number from 100 to 1000.*
   IV. *Set the fallingRight variable to true 50% of the time and false the rest.*
   V. *Increase the number of Leaves static field by 1.*

3) In the act method for Leaf, add the following:
   I. *Subtract one from the timer variable.*
   II. *Check if the timer is negative or zero, if so, do the rest of the steps below.*
   III. *Set the location of the leaf to its old x coordinate + dx / 2, old y coordinate + 5 - |dx| / 4*
   IV. *Check if the fallingRight variable is true:*
      a. *if so, add one to dx*
      b. *Check if dx is greater than 20, if so set fallingRight to false*
   V. *If the fallingRight variable was false (else):*
      a. *if so, subtract one to dx*
      b. *Check if dx is less than -20, if so set FallingRight to true*
   VI. *Check if the y coordinate is past the value of 600, if so, subtract one from the numLeaves static field and remove the leaf from the screen.*

4) Find the two commented out methods in Leaf. Uncomment these out.

Tree Class (To be done after the Leaf Class is Working)

1) In the addLeaves method, an amount of leaves to add is coming in as a parameter. The intention of this method is to add a very specific amount of leaves onto the screen.
   I. *Create a for loop that will loop <amount> number of times.*
   II. *Inside the loop's body, do the following:*
      a. *Create a Leaf object.*
      b. *Create a random x integer from 100 to 900.*
   III. *Create a random y integer from 0 to 400.*
      a. *Add the Leaf at (x,y).*

2) In the increaseLeavesTo method, an amount of leaves to increase the number of leaves to comes in as a parameter. The intention of this method is to add enough leaves to the screen that the total leaves on the screen is equal to the amount value that came in.

I. *Create a while loop which checks the Leaf's static method getNumLeaves and sees if it is less than the amount variable.*
II. *Inside the loop's body, follow the same steps as were done in the addLeaves' for loop.*

3) In the Tree's constructor, under the super line of code, call the static method called reset which was written in the Leaf class.

4) Do you see how the same four lines of code are being done in both loops for #1 and #2? If code is being repeated multiple times then it would be best if we made a method for it instead. Following what other methods look like, try to write a method called addRandomLeaf which takes in no parameters and returns no information. The method should do the same four tasks that was inside both loops. After the method is written, erase the four lines of code in both loops and replace those with a call to the addRandomLeaf method.