MONTE CARLO SIMULATION: CALCULATING THE AREA OF OVERLAP OF 2 ELLIPSES
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MAIN

PRINT INTRO/INSTRUCTIONS

DISPLAY RESULTS
-print area of overlap of 2 ellipses

Call function

Return area overlap

send 2 ellipses

SIMULATION
-calc area of box
-box area*% true

Return 2 ellipses

GET 2 ELLIPSES
-prompt user to create 2 ellipses using Ellipse class

Use to create ellipse

Return % of points in both ellipses

send 2 ellipses

Return box coord

send 2 ellipses

ELLIPSE CLASS
-initialize ellipse
-get foci
-calculate major axis
-calculate minor axis
-calculate area
-calculate circumference
-given a point determine if it is inside the ellipse

COMPUTE BOX
-create a box big enough to surround both ellipses

SIMULATE MANY
-for loop generating 10,000 random points inside box
-keeps count of # times points are in both ellipses
-returns % points are in both ellipses

send 2 ellipses + 1 random point

Return True if point is in both ellipses

POINT CLASS
-initialize point
-calculate distance between 2 points

SIMULATE ONCE
-takes the random point generated above along with the 2 ellipses and returns true if point is in both ellipses