

# STA 6326 Homework 4 Solutions

Maksim Levental

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- 4.1 (a) Probability of falling within the unit circle is area of the circle divided by area of  $\Omega$ . Hence  $P(X^2 + Y^2 < 1) = \pi/4$ .
- (b)  $P(2X > Y)$  is the area below the line  $y = 2x$ , divided by the area of  $\Omega$ . The portion of quadrant one that's above the line is the same as the portion in quadrant 3 that's below the line, and all of quadrant 4 is included. Hence  $P(2X > Y) = 1/2$ .

