

Show all your work. Late Homework will not be accepted without prior approval.

1. A dart board has radius 20 cm. Hitting within 5 cm of the center scores 6 points. Hitting anywhere else scores $20/r$ where r is the distance in cm from the center. Let X be the score on a single random throw. Find F_X and sketch its graph.

Note. This is an example of a mixed random variable ... F_X is neither continuous nor a step function.

2. A stick of length 1 is broken at random into three pieces. Find the probability that the pieces can make a triangle. *Hint.* Let the break points be X and Y . Then (X, Y) is a point in the unit square. Sketch the region representing a successful break.