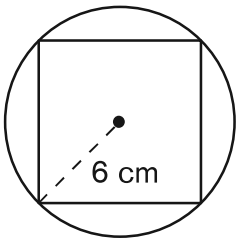
Workout 2

151._____ The letters in the word MATHLETE are arranged in a random order. What is the probability that no two consecutive letters are the same? Express your answer as a common fraction.

152._____ Consider a five-term arithmetic sequence that starts at 6 and increases by 5 with each term. Another sequence is added to the first, term by term, resulting in the sequence 25, 25, 25, 25, 25. What is the absolute difference between the first and last term of the second sequence?

153._____ What is the sum of the first 10 integers that have 3 distinct digits?

154._____ cm A square is inscribed in a circle with radius 6 cm, shown right. What is the length of a side of the square? Express your answer as a decimal to the nearest tenth.



155._____ An even number N has 16 positive integer divisors. If one of the divisors is chosen at random, the probability that it is even is $\frac{3}{4}$. What is the least possible value of N?

156._____ Let $f(x) = \frac{237}{2x-37}$. What the sum of all integer values of x such that $f(x)$ is also an integer?

157._____ Each positive integer 1 to 100, inclusive, is divided by 17. What is the sum of all 100 remainders?

158._____ A right triangle has a 30-degree interior angle and an integer length for its shortest side. The side lengths of this triangle have a product whose square is S. What is the sum of the possible values of S that are at most 2025?

C 159._____ combinations Justin has an unlimited supply of dimes and quarters. In how many different combinations of these coins can he pay exactly $5.00 for a board game?

C 160._____ What is the least positive perfect square that is a multiple of 24?