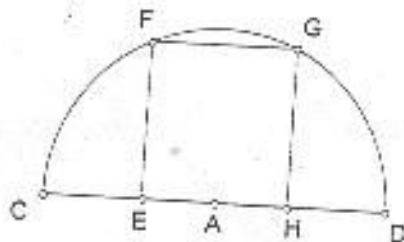Answers must be exact or must have 4 (or more) significant
digits, correctly rounded, unless otherwise noted

Calculators allowed

Problems 7-8. Time limit 10 minutes.

7. A box contains 20 slips of paper, numbered 1 to 20. Six slips are chosen (without replacement) and laid out in a row. Find the probability that they are in numerical order from smallest to largest.

8. In the figure at right, A is the center of the semicircle on diameter CD. EFGH is a square. If $CD = 10$, find the area of square EFGH.

Problems 9-10. 10 minutes.

9. Solve for x: $\sqrt{\dfrac{2}{x} \div 2} + \dfrac{2}{x} \div 2 = 6$

10. Find the area of the region enclosed by the graphs of $y = |x| - 4 \ and \ y = 2 - |x|$

Problems 11-12. 10 minutes.

11. Find the angle formed by the hour and minute hands of a standard 12-hour clock at precisely 4:30.

12. One of four men (Andy, Bob, Carl, or Dave) committed a crime. Each of the men made two statements (below), one of which is true and the other of which is false. Given the statements below, who committed the crime?

Andy: (1) Dave did it or Bob did it. (2) If Carl did it, then Bob didn't
Bob: (1) Andy's innocent and I'm innocent. (2) Bob is guilty and Carl is guilty.
Carl: (1) I didn't do it. (2) If Bob did it, then Andy didn't.
Dave: (1) If Carl did it, then Andy did it. (2) I didn't do it.