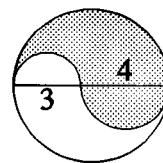**Part I** *Time Limit: 12 minutes*   Answers must be exact *or* have 4 (or more) significant digits, correctly rounded.

2-1.   A watermelon weighs 100 pounds and is 95% water. If it is dehydrated until it is 90% water, how many pounds does the watermelon weight after dehydration?

2-2.   What is the greatest integer that leaves the same remainder when divided into 383, 527, or 815?

Part II *Time Limit: 12 minutes*

2-3.   How many times will 0 appear as a digit in a list of the 1000 integers from 1 through 1000?

2-4.   In the diagram at the right, the diameter of the circle is divided into the ratio 3 to 4 by semicircles drawn on the diameter as shown. The circle's interior is split into a shaded and an unshaded region. What is the ratio of the area of the circle's unshaded region to the area of its shaded region?

Part III *Time Limit: 12 minutes*

2-5.   What is the center of symmetry of the graph of $x = \frac{y-4}{y+3}$?

2-6.   If 25 of the first 35 positive integers were picked at random, what is the probability that the median of the numbers picked would be 20? [NOTE: Optionally, you may leave your answer to this question in combinatorial notation.]

Notice: **A question next meet will repeat the theme of question 2-4.**

Answers

2-1.   50 or 50 lbs.
2-2.   144

2-3.   192

2-4. $\frac{3}{4}$ or 0.75

2-5.   (1, −3)

2-6. $\dfrac{\binom{19}{12}\binom{15}{12}}{\binom{35}{25}}$ or $\dfrac{\binom{19}{7}\binom{15}{3}}{\binom{35}{10}}$ or $\dfrac{1235}{9889}$ or 0.124886237233 . . .