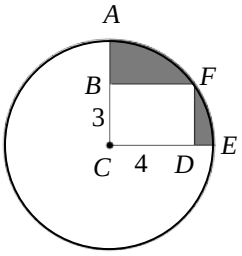
Grade 9

Extra Challenges - Set III

1. If $x = 20^{99}$, $y = 25^{100}$ and $z = 36^{101}$, how many zeroes are there at the end of product xyz?

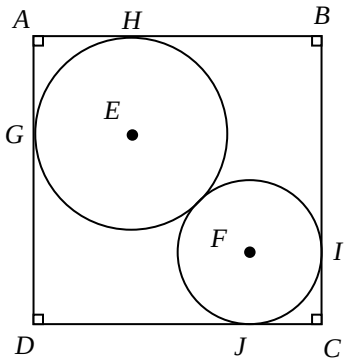
2. Six people meet at a party. Each person knows exactly two other people. If each person shakes hands with everyone he or she has never met, how many handshakes will occur?

3. In the figure, C is the centre of the circle, and F is a point on the circle such that $BCDF$ is a 3 cm by 4 cm rectangle. Find the area of the shaded region.



4. What is the sum of all possible numbers created by the digits 1, 2, 3, 4, 5, and 6?

5. In the diagram, $AB = 9$ and $BC = 8$. Two circles are inscribed in rectangle $ABCD$ with centres E and F. The two circles touch each other as well as the sides of the rectangle at points G, H, I, and J. If the radius of the smaller circle is 2 cm, what is the length of the radius of the larger circle?



Don't forget to try these past contests! Go to www.wiredmath.ca for the link.

TRY THESE!

Past Pascal Contests

http://www.cemc.uwaterloo.ca/contests/past_contests.html#pcf

Past Fryer Contests

http://www.cemc.uwaterloo.ca/contests/past_contests.html#fgh