In general, the formula for the perimeter of an $n$-gon is $P = nd\sin\left(\frac{\pi}{n}\right)$ where $d$ is the diameter. This can be derived by dividing the $n$-gon up into triangles, created by connecting each vertex to the center of the $n$-gon.

Community member John Snyder submitted a correct solution.
There were no student solutions, so next week’s prize is $20$. 