A Direction Labeling Exercise

A) Based on the image shown, provide a guess as to the *n* and *k* that produced this image.

B) Use the numbers from 1 to 20 to describe each of the lines in this image where the convention is, label the line by the ending of the line parallel to the line 21-j. For example, the line 20-2 would be labelled 1 since 20-2 is parallel to 21-1.

C) Can you describe in words any patterns that you see in your labeling of lines?

D) Re-answer A-C for two more related images: *n* = 23, *k* = 11 and *n* = 25, *k* = 12. (You can either print the image or just notice what happens at the vertices that are close to 1/3 and 2/3 of the way around the circle.)

E) *n* = 27, *k* = 13 will be most similar to which of the three images examined here? Why?