Mathematics Whiteboard Competition – Week 4
Solutions are due April 3, 2019, 5:00 p.m.
See the yellow Math Whiteboard Challenge posters for more detail.

1. Use the diagram below to help prove that $\pi = \arctan(1) + \arctan(2) + \arctan(3)$.

2. If a chicken and a half lays an egg and a half in a day and a half, how many eggs will 6 chickens lay in 12 days?

3. Jack and Dianne live in downtown BigTown, where the streets are laid out in a north-south grid pattern. All the east-west running streets have numbered names (First Street, Second Street, Third Street, etc.), and as you drive south, the numbers get bigger. The north-south running streets have lettered names (A Street, B Street, C Street, etc.), and as you drive east, the letters progress through the alphabet. Jack lives at the corner of A Street and First Street, while Dianne lives at the corner of E Street and Eighth Street. Jack likes to visit Dianne, but he has a strange phobia that only allows him to drive East and South on his way to her house. How many different routes can Jack take to arrive at Dianne’s house?