

Math 724, Fall 2013
Take-Home Test #1 — Notes

Problem #1(c): The following are all considered *different* bridge deals:

Deal 1	Deal 2
North: ♠ AKQ ♥ AQT ♦ 7532 ♣ 864	North: ♠ AKQ ♥ AQT ♦ 7532 ♣ 864
South: ♠ JT9 ♥ K864 ♦ A ♣ A7532	South: ♠ 5432 ♥ 53 ♦ KQJT98 ♣ J
East: ♠ 5432 ♥ 53 ♦ KQJT98 ♣ J	East: ♠ JT9 ♥ K864 ♦ A ♣ A7532
West: ♠ 876 ♥ J972 ♦ 64 ♣ KQT9	West: ♠ 876 ♥ J972 ♦ 64 ♣ KQT9

Problem 4: The phrase “decimal expansion” seems to be causing unintended confusion. I just mean that every digit of the number is a 9. For example, $n = 3$ is a divisor of 9; $n = 239$ is a divisor of 9999999 (= $41841 \cdot 239$); etc.

Hint: Use the Pigeonhole Principle. (This has come up in a couple of in-class problems, but we haven’t yet focused on it. See §1.3.3.)