

UNC MATHEMATICS CONTEST FINAL ROUND 2017 ANSWERS

Rules: Three hours; no calculators. No phones to be used or visible during the contest.

Put your final answers below and show your written work for each problem, in order and clearly numbered, on pages behind this page. Justify answers to receive full credit. If you use a formula or fact not normally encountered in regular school math, your paper will rank higher if you show something about the derivation of the formula or fact.

You may keep your copy of the questions.

1. 12

7(a). 41

2. 4/3

7(b). 41

3. 985,674,321

8. -1

4. 102,564

9. ${}_nC_6 + 5{}_nC_5 + 4{}_nC_4 + {}nC_3$

5(a). & 5(b).

10. 2, 6, 10, 14... (& other possibilities)

BEAGCDF & CAEGBDF

6. $1 + 5n + 5n^2$

11(a). 16

11(b). 42

I pledge on my honor that the answers and the work I am submitting are my own and that I have received no inappropriate assistance.

Signature: _____