



Math Olympiad and Problem Solving Programs
E220 - Intermediate Math Competitions
Problem Set 8.1 - AMC 8 Probability Table

Name:

Date:

1. E
2. D
3. B
4. In order for the product to be a multiple of 5, it has to have a factor of 5. Consider how you can roll two dice such that at least one of the numbers is 5: (1,5), (2,5), (3,5), (4,5), (5,5), (6,5), (5,1), (5,2), (5,3), (5,4), (5,6). There are 11 ways. So our probability is $\frac{11}{36}$. D
5. B
6. D
7. Count the possibilities of four nickels where there are at least as many heads as tails. Use cases: 4 heads: HHHH, 1 way of having at least as many heads as tails. 3 heads: HHHT, HHTH, HTHH, THHH, 4 ways of having at least as many heads as tails. 2 heads: HHTT, HTHT, THHT, HTTH, THTH, TTHH, 6 ways of having at least as many heads as tails. 1 head: there are never as many heads as there are tails. 0 heads: there are never as many heads as there are tails. So there are $1 + 4 + 6 = 11$ ways of getting at least as many heads as tails, and there are $2^4 = 16$ combinations possible. So the probability is $\frac{11}{16}$. E
8. A
9. C