



Math Olympiad and Problem Solving Programs
E220 - Intermediate Math Competitions
Problem Set 9.1 - AMC 8 Probability

Name:

Date:

1. C

2. E

3. B

4. B

5. $\frac{5}{12}$ - problem was omitted

6. B

7. Count how many phone numbers are possible: 8×10^6 . Count how many phone numbers start with 9 and end with 0: 10^5 . Now divide: $\frac{10^5}{8 \times 10^6} = \frac{1}{80}$. B

8. We will compare the areas of the two regions of the circle: the inner circle and the whole circle. Consider a circle with radius r . Then the inner circle has radius $\frac{r}{2}$, and the area of the inner circle (or the area of the target that is closer to the center) is $(\frac{r}{2})^2\pi = \frac{\pi r^2}{4}$. Now we'll find the area of the whole circle: πr^2 . So the probability that the point is within the inner circle is $\frac{\frac{\pi r^2}{4}}{\pi r^2} = \frac{\pi r^2}{4(\pi r^2)} = \frac{1}{4}$. A