Math Competition Questions 3
Math 180 Strategies of Problem Solving

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Question 1

Question

How many square yards of carpet are required to cover a rectangular floor that this 12 feet long and 9 feet wide? (There are 3 feet in a yard.)

Question 2

Question

Jack and Jill are going swimming at a pool that is one mile from their house. They leave home simultaneously. Jill rides her bicycle to the pool at a constant speed of 10 miles per hour. Jack walks to the pool at a constant speed of 4 miles per hour. How many minutes before Jack does Jill arrive?

Question 3

Question

Billy's basketball team scored the following points of the course of the first 11 games of the season:

$$42, 47, 53, 53, 58, 58, 58, 61, 64, 65, 73.$$

If his team scored 40 in the 12'th game, which of the following statistics will show an increase?

range, median, mean, mode, mid-range

Question 4

Question

Each of two boxes contains three chips numbered $1, 2, 3$. A chip is drawn randomly from each box and the numbers on the two chips are multiplied. What is the probability that the product is even?

Question 5

Question

On her first day of work, Janabel sold one widget. On day two, she sold three widgets. On day three, she sold five widgets, and on the succeeding day, she sold two more widgets than she sold on the previous day. How many widgets in total had Janabel sold after 20 days?

Question 6

Question

In the small country o fIcosahedrontopia, all automobile license plates have four symbos. The first must be a vowel (A,E,I,O, or U), the second and third must be two different letters aong the 21 non-vowels, and the fourth must be a digit (0 through 9). If the symbols are chosen at random subject to these conditions, what is the probability that the plate will read "AMC8"?

Question 7

Question

How manysubsets of two elements can be removed from the set $\{1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11\}$ so that the mean (average) fo the remaining numbers is 6?

Question 8

Question

At Euler Middle School, 198 students voted on two issues in a school referendum with the following results: 149 voted in favor fo the first issue and 119 voted in favor of the second issue. If there were exactly 29 students who voted against both issues, how many students voted in favor of both issues?

Question 9

Question

Jeremy's father drives him to school in rush hour traffic in 20 minutes. One day there is no traffic, so his father can drive him 18 miles per hour faster and gets him to school in 12 minutes. How far in miles is it to school?

Question 10

Question

A triangle with vertices $A = (1, 3)$, $B = (5, 1)$ and $C = (4, 4)$ is plotted in a 6×5 grid. What fraction of the grid is covered by the triangle?