

Math Olympiad Beginner

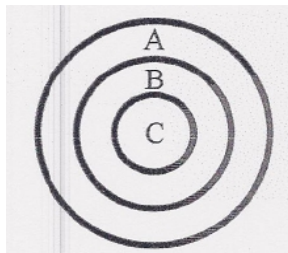
Homework 10

Name _____

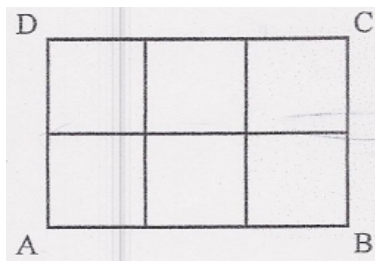
1. A jar contains a large number of pennies. The pennies can be divided into equal shares among 3, 4, 5, 6, 7, or 8 children with no pennies left over each time. What is the least number of pennies the jar could contain?
2. Suppose all counting numbers are arranged in columns as shown below. Under what letter will the number 300 appear?

A	B	C	D	E	F	G
1		2		3		4
	7		6		5	
8		9		10		11
	14		13		12	
15		16		...		

3. In the target at the right, ring A, ring B, and circle C have different point values. The sum of the point values of A and B is 23, of B and C is 33, and of A and C is 30. What is the sum of the points values of A, B, and C?

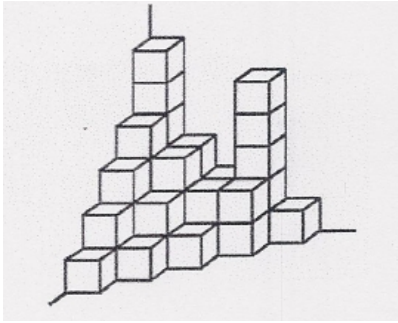


4. ABCD is a rectangle whose sides are 3 units and 2 units long. The length of the shortest path from A to C following the lines of the diagram is 5 units. How many different shortest paths are there from A to C?

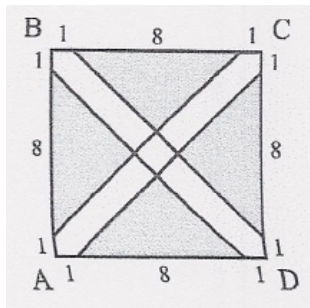


5. A certain examination of 12 questions was graded by giving 10 points for each correct answer and by then deducting 5 points for each incorrect answer. David attempted all 12 questions, leaving no question unanswered and scored a total of 75 points. How many wrong answers did he have?

6. The structure at bottom is made of unit cubes piled on top of each other. Some cubes are not visible. What is the number of cubes in the structure?



7. ABCD represents a four-digit number. The product of its digits is 70. What is the largest four-digit number that ABCD can represent?
8. A bus was rented at a fixed cost by a group of 30 people. When 10 people were added to the group, the fixed cost of the bus did not change, but the charge for each person in the original group was \$2 less than before. If each person paid the same charge as each of the others, find the fixed cost of the renting the bus.
9. Suppose two days before yesterday was Wednesday. What day of the week will it be 100 days from today?
10. A light flashes every 2 minutes, a second light flashes every 2.5 minutes and a third light flashes every 3 minutes. Suppose all three lights flash together at 9:00 AM. What is the next time of the day they will all flash together?
11. ABCD is a square with each side divided into three segments of length 1 unit, 8 units, and 1 unit respectively, as shown in the diagram. What is the sum of the areas of the four shaded triangles?



12. 6, 14, and 15 are factors of the counting number N. What is the smallest value that N can have?