

Math Olympiad Beginner Homework 5

Name _____

1. What is the sum?

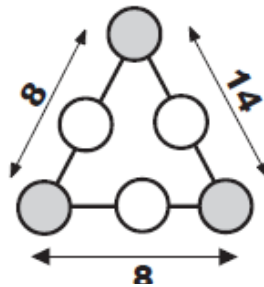
$$81 + 18 + 72 + 27 + 63 + 36 + 54 + 45 + 4$$

2. There are a total of 100 men and women on an airplane. There are 12 more women than men. What is the number of women on the airplane?

3. What is the total number of rectangles of **all** sizes that can be traced using the lines in this diagram?



4. Each of the 6 circles contains a different counting number. The sum of the 6 numbers is 21. The sum of the 3 numbers along each side of the triangle is shown in the diagram. What is the sum of the numbers in the shaded circles?



5. What number makes the statement true?

$$220 - 22 = \underline{\hspace{1cm}} \times 22$$

6. Suppose we call a number *funny* if it is the product of three prime factors, of which exactly two are the same. (For example: $12 = 2 \times 2 \times 3$, so 12 is *funny*.) What is the total number of *funny* numbers between 30 and 60?

7. In the figure, all angles are right angles and all distances are in meters. What is the area of the figure, in square meters?

8. The digits of a four-digit number are 1, 3, 6, and 9, but not necessarily in that order. The thousands digit is prime. The hundreds digit is 3 more than the tens digit. What is the number?
9. Emma has 4 more quarters than nickels. The total value of her quarters and nickels is \$3.10. In all, what is the number of nickels that Emma has?
10. January 1, 1990 was a Monday. What day of the week was February 1, 1990?
11. In an election, Ethan got 5 fewer votes than Christopher, who got 3 votes more than Olivia, who got 4 fewer votes than Ava. How many more votes did Ava get than Ethan?
12. A total of 20 marbles are placed into 5 cups. Each cup has a different number of marbles. No cup has exactly 4 marbles, and no cup is empty. What is the greatest number of marbles that any one cup can have?
13. Joshua has more than 250 toy soldiers. When he tries to arrange them in rows of 3, there are 2 left over. When he tries to arrange them in rows of 5, there are 2 left over. When he tries to arrange them in rows of 7, there are 2 left over. What is the least number of toy soldiers Joshua may have?
14. What is the value of the following?

$$55 - 11 + 44 - 22 + 33 - 33 + 22 - 44 + 11 - 55$$

15. In the figure shown, two squares share corner A. The larger square has an area of 49 sq cm. The smaller square has an area of 25 sq cm. What is the perimeter of the shaded region, in cm?

