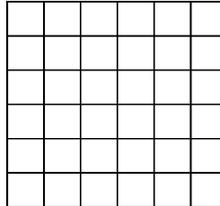1. Calculate the whole number remainder when 987,670 is divided by 128.

1. _____

2. Consider the six by six grid of unit squares below. How many rectangles of area 8 square units can be formed using only the line segments of the grid as the sides of the rectangles?

2. _____

3. The terms of a particular sequence are determined according to the following rule: If the value of a given term t is an odd positive integer, then the value of the following term is $3t-9$; if the value of a given term t is an even positive integer, then the value of the following term is $2t-7$. Suppose that the terms of the sequence alternate between two positive integers $(a, b, a, b, ...)$. What is the sum of the two positive integers?

3. _____

4. In the addition problem below, A, B, C, D and E are all different digits. What is the sum of the two possible values of $(E + D - B)$?

$$
\begin{array}{ccc}
 & C\ A\ E \\
+ & \ \ C\ D \\
\hline
 & A\ B\ B
\end{array}
$$

4. _____

5. Given the equations $3x + y = 17$, $5y + z = 14$ and $3x + 5z = 41$, what is the value of the sum $x + y + z$?

5. _____

6. Mr. Reader has six different Spiderman comic books, five different Archie comic books and four different Garfield comic books. When stacked, all of the Spiderman comic books are grouped together, all of the Archie comic books are grouped together and all of the Garfield comic books are grouped together. In how many different orders can these 15 comic books be stacked in a pile with the covers facing up and all of them facing the same direction? Express your answer as a whole number.

6. _____

7. P(n) represents the probability that an "n" is rolled on a die. A six-faced die, with faces labeled 1 through 6, is weighted such that:
   • P(1) = P(2)
   • P(3) = P(4) = P(5)
   • P(4) = 3(P(2))
   • P(5) = 2(P(6))
   If this die is rolled once, what is the probability that a "6" is rolled? Express your answer as a common fraction.

7. _____

8. An isosceles trapezoid is inscribed in a semicircle as shown below, such that the three shaded regions are congruent. The radius of the semicircle is one meter. How many square meters are in the area of the trapezoid? Express your answer as a decimal to the nearest tenth.
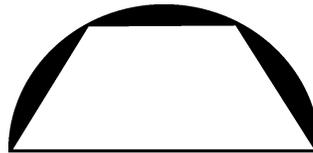
8. _____

9. What is the greatest positive integer n such that 3^n is a factor of 200! ?

9. _____

10. An *abundant number* is a positive integer, the sum of whose distinct proper factors is greater than the number. (The *proper factors* of a number are all of its factors except the number itself.) How many numbers less than 25 are abundant numbers?

10. _____