Math 5a, homework 4.

1. Simplify the expressions:
   a. $2^4 + 2^4$;
   b. $2^m + 2^m$;
   c. $2^m \cdot 2^m$;
   d. $3^2 + 3^2 + 3^2$;
   e. $3^k + 3^k + 3^k$;
   f. $3^k \cdot 3^k \cdot 3^k$;

2. Compute:
   a. $-4 - (-9)$;
   b. $-\left(-8 + (-4)\right)$;
   c. $-3 - (9 + (-6)$;

   d. $-3 - (-7) + (-5)$:
   e. $-2 \cdot (-5) \cdot (-2)$;
   f. $-\dfrac{3}{5} - \left(-1\dfrac{1}{3}\right)$;

3. Do the addition of the numbers in quinary (based on 5) system, to check the results, write numbers in decimal system, add them and rewrite the answer in quinary system.

   a. $221_5 + 104_5$;
   b. $432_5 + 114_5$;

4. Write the numbers, written in the binary system in decimal system:

   a. 11011011_2;
   b. 10001101_2,
   c. 111111111_2

5. Write numbers in binary system:
   a. 55;
   b. 93;
   c. 174;

6. How to arrange 127 1-dollar bills in seven wallets so that any amount from 1 to 127 dollars could be issued without opening the wallets?

7. How many multiples of 3 are there between 1 and 1400?

8. A truck can cover distance between two cities in 10 hours. A fast car, which goes 10 miles per hour faster than the truck, can cover the same distance in 8 hours. What is the distance?