Classwork 4.

1. Represent a^{24} as an exponent with the base:
   Example: $(a^2)^{12} = a^{24}$

           $a.\ a^2;$ $b.\ a^3;$ $c.\ a^4;$ $d.\ a^6;$ $e.\ a^8;$ $f.\ a^{12}$

2. Compare the following exponents:

   $a.\ 127^{23}\ \ and\ 512^{18}$ (hint: use power of 2); $b.\ \ 2^{25}\ and\ 3^{24}$ (hint: use $a^{l+k} = a^k \cdot a^l$)

3. Write in the increasing order:

        $a.\ \ -0.11,\ \ \ \ (-0.11)^2,\ \ \ \ (-0.11)^3,\ \ \ \ (-0.11)^4$

        $b.\ \ \left(\dfrac{1}{3}\right)^{30},\ \ \ \ \left(-\dfrac{1}{5}\right)^{30},\ \ \ \ -\left(\dfrac{1}{7}\right)^{30}$

4. How many kilograms of butter can be produced from 1000 kg of milk, if fat content of milk is 3.5% and fat content of butter is 75%?

5. Prove that

   $11^{14} + 3^{22}$ is divisible by 10 (hint: when you add two numbers, you need the last digit to be 0 for the number being divisible by 10)

   $9^7 - 3^{10}$ is divisible by 20