Math 4. Homework #6.

Assigned on October 29th.

1. Write the following numbers as products of their prime factors:

a). 1001 b). 2002 c).24024 (divisible by 24)

2. Set $A = \{a, h, k, 4, 7, 9\}$, set $B = \{4, a, 9, l, p, 7\}$

   Write the set $C = A \cap B$, and the set $D = A \cup B$

3. Find LCM and GCD of …

   a). 15 and 12;
   b). 10 and 40; show these using Venn Diagrams
   c). 27 and 15;
   d). 16 and 25 - show these using Venn Diagrams

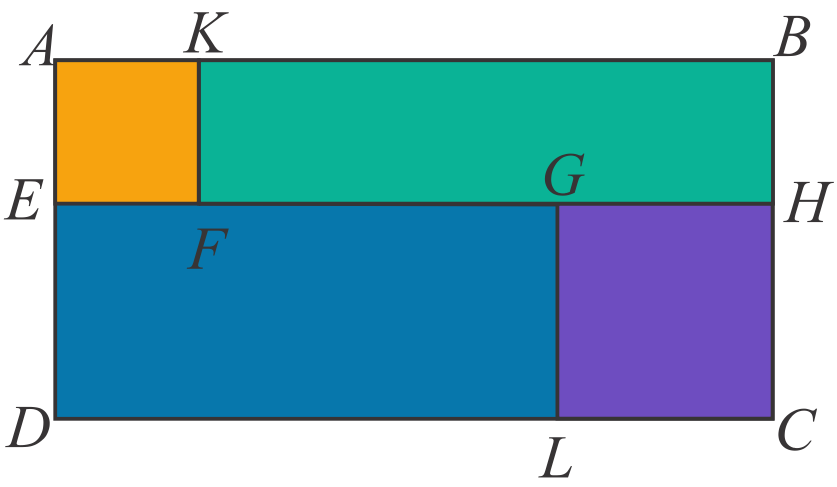
**4.** A city and its fortress were founded 800 years ago. During $\frac{1}{5}$ of that time the fortress was built. How many years did it take to build this fortress?

5. Find x, y and z, which satisfy all three relations below?

$$x + x = 8$$
$$x - y = 1$$
$$y + y = z$$

6. On a straight line 4 points are marked. Point C is located between points A and B. Point D is located between points C and B. Which segment is shorter:
   a. AB or CD
   b. AD or AC
   c. CD or CB?

7. Find the area of the rectangle ABCD, if area of square AKFE is 4cm$^2$, area of the square LGHC is 9cm$^2$, points E, F, G, H are on the same straight line, length of the segment FG is 5cm.




8. At a bus stop, there are three bus lines. One of them has buses running every 3 minutes, the other has buses running every 5 minutes, and the third one, every 7 minutes. At noon, the buses for all three lines meet at the stop. When will the same thing happen next time?

9. S16 is set of multiples of 16 less than 100. S12 is a set of multiples of 12 less than 100.Write a set definition using curly brackets {}, Draw Venn diagram for S12 and S16.

10. Make an auxiliary **drawing** to construct an **equation** needed to solve a word problem:

Four friends, Pichu, Pikachu, Tepig, and Oshawott went trick or treating. Oshawott collected 50 more candies than Pichu, Pikachu 50 less, and Tepig got 2 times more candies than Pichu. When they got together and put all candies in one jar, the number was 250.

*How many candies each one collected?*