Algebra and Geometry 1. Homework 1.

1. $A = \{1, 2, 5, 10, 15, 20\}$
   $B = \{2, 5, 10, 25, 45, 70\}$
   Write the sets $C = A \cup B$ and $D = A \cap B$

2. $A = \{1, 2, 5, 10, 15, 20\}$
   $B = \{2, 5, 10, 20, 25, 45, 70\}$
   $C = \{2, 5, 15, 20, 25, 65, 75\}$

   Write the sets $M = A \cap B \cap C,\ N = (A \cap B) \cup C$

3. Give examples of several members of the following sets:

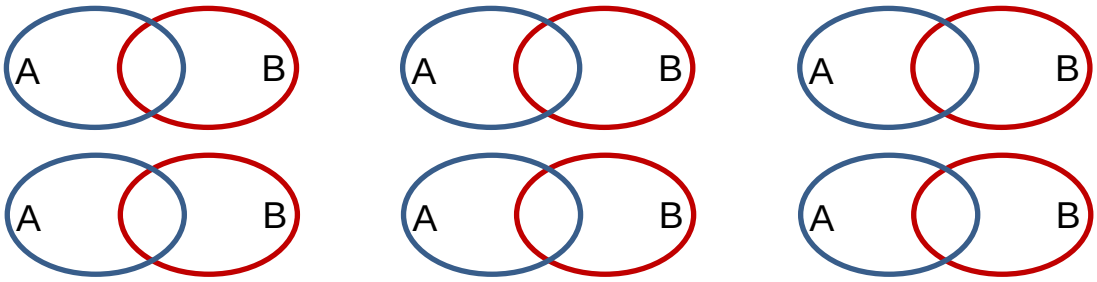
   Example:

   $M = \{x | \ x = mammals\}$

   x can be a lion, a whale, a bat…

   a. $K = \{y | \ y = letter\ of\ the\ english\ alfabet\}$
   b. $M = \{x | \ x = flower\}$
   c. $X = \{m | \ m = even\ number\}$
   d. $P = \{k | \ k = color\}$

4. On the diagrams of sets A, and B put 4 elements so that (just draw 2 points, or put any two letters).
   a. each set contains 3 elements
   b. set A contains 2 elements, set B contains 4,
   c. set A contains 4 elements, sets B contains 3 elements,
   d. set A contains 0 elements, set B contains 4 elements,
   e. each set contains 2 elements,
   f. each set contains 4 elements.



5. In the class of 21 students soccer and basketball teams are formed. Every student signed up for at least one team: 12 students play only soccer; 2 students play both soccer and basketball; How many students play basketball only?

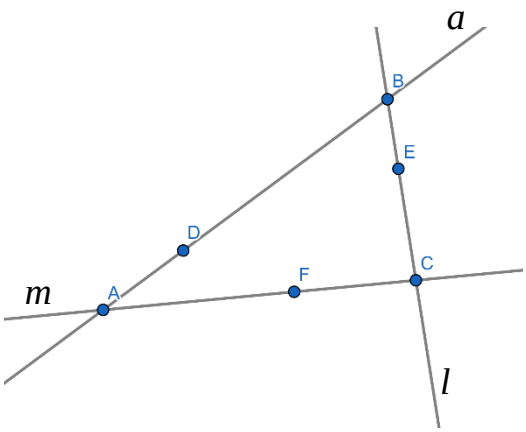
6. Students who participated in math competition had to solve 2 problems, one in algebra and another in geometry. Among 100 students 65 solved algebra problem, 45 solved geometry problem, 20 students solved both problems. How many students didn't solve any problem at all?

7. In 2 boxes there are 160 notebooks altogether. In one box there are 20 more notebooks than in the other. How many notebooks are there in each box?

8. The cyclist rode a bicycle at a speed of 14 km / h, and the distance he traveled is 6 km. How much time did it take? Represent the answer in minutes.

9. Draw two rays AB and CD in such way that their intersect

   a. by a point
   b. by a segment
   c. by a ray
   d. don't intersect at all.



10. Through which points does the lime *m* pass?
    Through which points does the lime *a* pass?
    What is the intersection of the lines *m* and *l*?

11. Mark 2 points. How many different lines can be drawn through these two points?

12. Mark three points. How many lines can be drawn through three points?
    Consider all possible solution.

    Mark four points. How many lines can be drawn through four points? Consider all possible solution.

13. Place parentheses into the following expression so that the statement is true.

a.	$15 - 35 + 5 \div 4 = 5$	*d*.	$96 - 12 \cdot 6 : 3 = 8$
b.	$60 + 40 - 16 : 4 = 66$	*e*.	$64 : 64 - 8 \cdot 4 = 2$
c.	$24 : 56 - 8 \cdot 4 = 1$	*f*.	$63 : 9 + 54 = 1$