Math 5b, homework 11.

1. Give a few examples of possible 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. $P = \{k| \ k = rational \ number\}$

2. There are 21 students in a math class. Ten students like apples, and fifteen students like pears. Show that some students like both apples and pears. Is it possible to determine if there are students who do not like both apples and pears? Explain your answer.

3. The same Math class (with 21 students) forms a soccer team and a basketball team. Every student signs up for at least one team: 12 students play only soccer; 2 students play both soccer and basketball; How many students play basketball only?

4. On the diagrams of sets A, B, and C put 2 elements so that (just draw 2 points, or put any two letters).
   a. each set contains 2 elements
   b. set A contains 2 elements, set B contains also 2 elements, and set C contains 1 element.
   c. set A contains 2 elements, sets B and C contain 1 element each
   d. set A contains 2 elements, set B contains 1 element, and set C is an empty set
   e. set A contains 2 elements, set B contains 2 elements, and set C is an empty set
   f. each set contains 1 element

5. After traveling half, the distance at a certain speed, the bus stood still for an hour due to an accident on the road. To make up for the lost time on the remaining 200 km, the bus driver drove at a speed 10 km/h greater than the speed at the start of the journey. The bus arrived at its destination on time. At what speed did the bus travel the first half of the route?

6. The father is three times older than the son or 34 years older. How old is the father? And how old is the son?
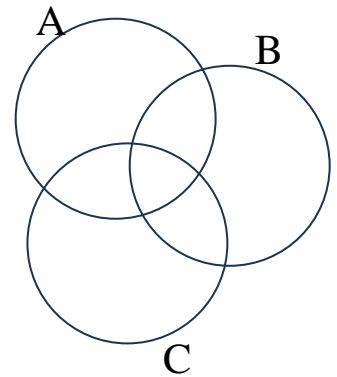
7. Solve the equations:

a. $3.3 - 0.3a = 0.33$

b. $b : 8 - 0.88 = 8.8$

c. $55 : c + 0.5 = 55.5$

d. $7.777 : (7 - d) = 7.7$

e. $7.77 \cdot (0.7 : x + 7) + 7.07 = 77$

f. $9.99 - 0.99 : (99y - 9.9) = 9.09$

g. $(0.2z - 22) : 2.2 + 2 = 20.2$

h. $4.44 - (t : 4.04 - 40.4) : 4 = 0.04$