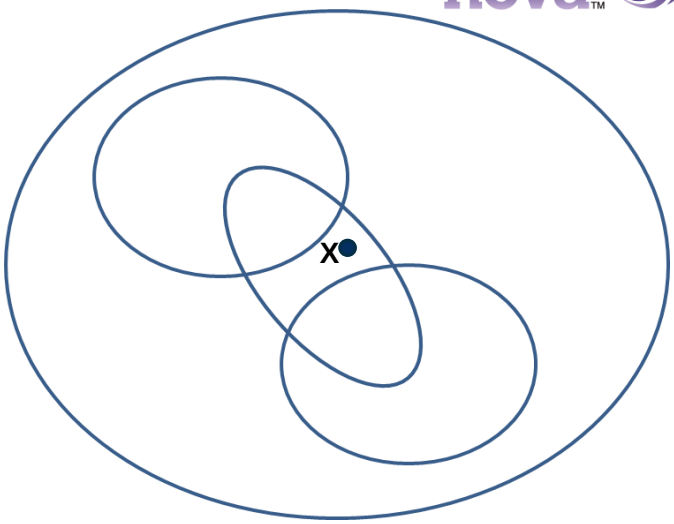
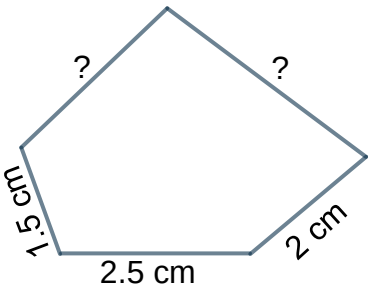
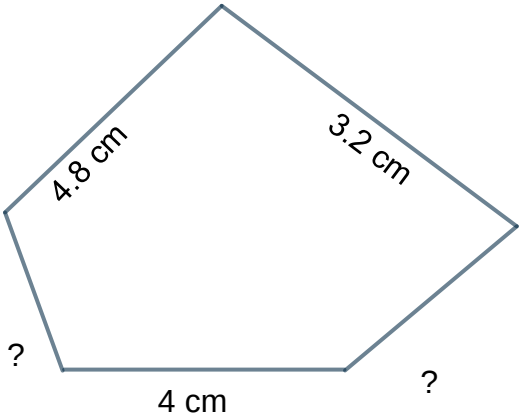
Math 4a. HW 22.

1. A is a set of all animals.
   B is a set of mammals.
   C is a set of birds.
   E is a set of animals, who can swim.
   In your notebook draw a picture as shown and mark the sets. Provide a few examples of the elements of each set.
   For example:
   A wolf is a mammal, $\text{wolf} \in B$.
   What can be the element X?



2.





Shape and its increased copy are shown on the picture above. Can you find the missing lengths? What is the ratio with which the shape has been increased?

3. Write the following expressions as a product or power:
   a. $2 \cdot 2 \cdot 2 \cdot 2 \cdot 2$;
   b. $2 + 2 + 2 + 2 + 2$;
   c. $a \cdot a \cdot a$;
   d. $a + a + a$;
   e. $\underbrace{x \cdot x \cdot \ldots \cdot x}_{20\ times}$;
   f. $\underbrace{x + x + \cdots + x}_{20\ times}$;

4. Write the following expressions in a shorter way:
   Example: $7 \cdot 7 \cdot 7 \cdot 8 \cdot 8 \cdot 8 \cdot 8 \cdot 9 \cdot 9 \cdot 9 \cdot 9 \cdot 9 = 7^3 \cdot 8^4 \cdot 9^5$

a. $2 \cdot 3 \cdot 3 \cdot 3 \cdot 3 \cdot 7 \cdot 7;$

b. $\underbrace{3 \cdot 3 \cdot \ldots \cdot 3}_{n\ times} \cdot \underbrace{5 \cdot 5 \cdot \ldots \cdot 5}_{m\ times}$

c. $\underbrace{(-4) \cdot (-4) \cdot \ldots \cdot (-4)}_{k\ times} \cdot \underbrace{6 \cdot 6 \cdot \ldots \cdot 6}_{l\ times}$

5. Calculate in you head, just write the answer:

$-7-(-3);$	$-2.5 \cdot (-8);$	$\lvert 90 \rvert : \lvert -0.3 \rvert;$	$0 : (-7.6);$
$0.4-0.9;$	$-\frac{3}{4} \cdot 1.6;$	$\lvert -2.4 \rvert \cdot \left\lvert \frac{1}{3} \right\rvert;$	$-1 \cdot \left(-1\frac{2}{9}\right);$
$-1.2+5;$	$4.2 : (-0.7);$	$\lvert -0.6 \rvert - \lvert -4 \rvert;$	$4.5 : (-1);$
$-0.7-0.8;$	$(-0.125) : \frac{1}{8};$	$\lvert -5.6 \rvert + \lvert -0.2 \rvert;$	$\left(3.4-3\frac{2}{5}\right) \cdot 6.4$

6. What should be *x* equal to in the following equations:

$2^x = 8;$	$\left(\frac{1}{4}\right)^x = \frac{1}{64};$	$3^x = 9;$
$x^2 = 4;$	$x^3 = 27;$	