ALEX COOPER

PROBLEM SETS VOL. II

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Problem Set №1

Nouns are words that describe things, objects, or people.

1. Underline the nouns in the following sentences.

   (a) My dog can juggle three watermelons while riding a unicycle.

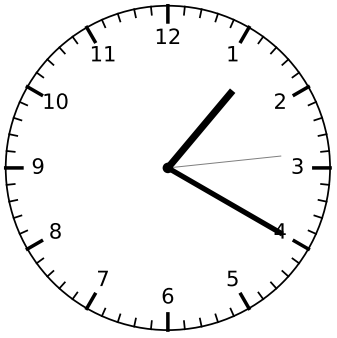
   (b) A grumpy ghost in my closet keeps asking for a sandwich.

   (c) The school bus is powered by a giant sneeze from Puff, a friendly dragon.

   (d) For breakfast, I ate a pancake shaped like a stegosaurus.

2. What's the time? .....

   .....



3. Farmer Giles grew one thousand, nine hundred and ninety-eight singing potatoes. A flock of very hungry seagulls ate six hundred and eighty-nine of them. How many singing potatoes are left?

   Number sentence: .....

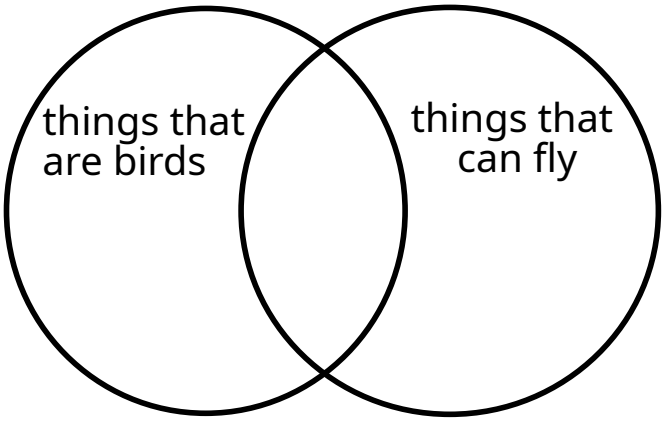
   Answer: There are .....

   .....

   .....

   ..... singing potatoes left.

4. Note on the Venn diagram where each of the following things belong: parakeets, rockets, ostriches, sugar gliders.



Problem Set №2

1. Find ten nouns in this picture of a classroom.

   (a) ..... (f) .....

   (b) ..... (g) .....

   (c) ..... (h) .....

   (d) ..... (i) .....

   (e) ..... (j) .....

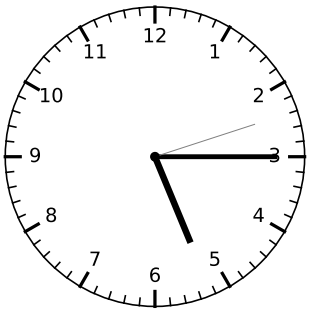
2. A grumpy gargoyle found seven hundred and sixty-five shiny bottle caps. He then found two hundred and thirty-six more. How many bottle caps does the gargoyle have in total?

   Number sentence: .....

   Answer: The gargoyle has .....

   .....

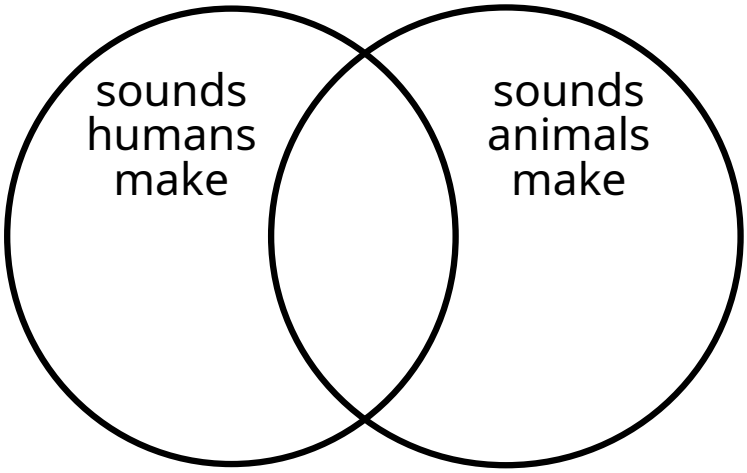
   .....bottle caps in total.



3. The time is .....

   .....

4. On the Venn diagram, note where each of the following things belong: growl, speaking, snort, burp, giggle, meow.



Problem Set №3

1. Complete each sentence by filling in each blank with a **noun**.

   (a) Princess Fluffybutt ate three .....

   (b) Professor Bumble wrote a .....

   (c) The ..... was chasing the .....

   (d) The sneaky cat broke the .....

   (e) The treasure chest contained .....

2. Princess Penelope likes animals. She has eight unicorns, six penguins, twelve cats, a guinea pig, three puppies, one hundred and three mice, and a sugar glider. How many pets does Princess Penelope have in total?

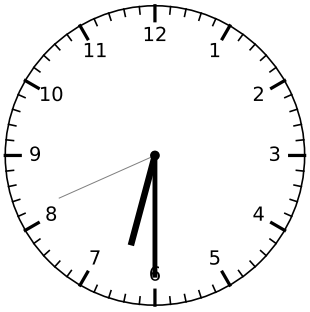
   Number sentence: .....

   Answer: Princess Penelope has .....

   ..... pets.

3. The time is .....

   .....



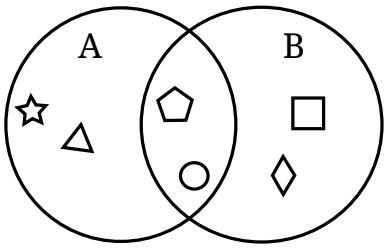
4. The Venn diagram shows the elements of two sets, A and B.
   What are the elements:

   (a) in set A: .....

   (b) in set B: .....

   (c) <u>both</u> in set A and in set B: .....

   (d) in set A <u>but not</u> in set B: .....



Problem Set №4

A **proper noun** starts with a capital letter and names a particular person, place, season, etc. Other nouns are called **common nouns**.

1. Underline the proper nouns and squiggle under the common nouns in these sentences.

   (a) Spot likes to chase mice in the garden during Spring.

   (b) Miss Fluffybutt is the principal of Fluffybutt Primary School.

   (c) The garden is full of flowers in Summer.

   (d) My school is located on Stinky Lane.

   (e) Several students are having a picnic in the park.

   (f) The old teacher is wearing a blue shirt.

   (g) The students are having a picnic in the park.

2. Princess Penelope had nine thousand, eight hundred and seventy-six soft toys. She gave eight thousand, nine hundred and eighty-eight of them away to charity. How many soft toys does Princess Penelope have left?

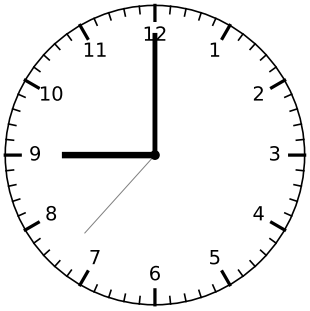
   Number sentence: .....

   Answer: Princess Penelope has .....

   ..... soft toys left.

3. The time is .....

   .....



4. Three boys go to school using a different methods at different speeds. The boy who rides his bike goes super fast. Ken does not walk. Russ travels at a medium pace. The person who travels slowly is walking.

	Walking	Bike	Scooter	Super Fast	Medium	Slowly
Bob						
Ken						
Russ						

- Bob .....
- Ken .....
- Russ .....

Problem Set №5

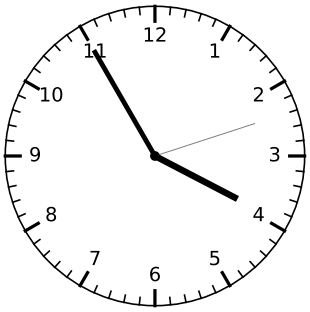
Countable nouns can be counted (e.g. one apple, two apples). **Uncountable nouns** cannot be counted (e.g. sand, rain, sugar). Countable nouns usually form the plural by appending –s, but uncountable nouns do not.

1. Next to each noun, write "C" if it is countable, "U" if it is uncountable, or "CU" if it is both.

   (a) apple: .....
   (b) car: .....
   (c) house: .....
   (d) wood: .....
   (e) water: .....
   (f) wine: .....
   (g) cheese: .....
   (h) pumpkin: .....
   (i) bread: .....
   (j) milk: .....
   (k) sugar: .....
   (l) salt: .....
   (m) pepper: .....

2. The time is .....

   .....



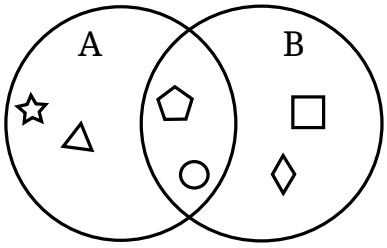
3. Underline the proper nouns and squiggle under the common nouns in these sentences.

   (a) Ben visited Paris with his family.
   (b) Ben loves chocolate.
   (c) The family ate too much chocolate and had to go for a walk.
   (d) Ben and his sister felt very sick and had to go to the doctor.
   (e) The doctor gave them some medicine to make them feel better.
   (f) Ben's sister threw up all the chocolate she ate.

4. Refer to the Venn diagram, then fill in the blanks with $\in$ or $\notin$.

   (a) $\square$ .....A (c) $\bigcirc$ .....A (e) $\triangle$ .....A

   (b) $\square$ .....B (d) $\bigcirc$ .....B (f) $\triangle$ .....B

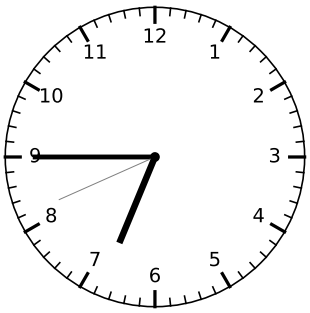


If $\square$ is in set S, mathematicians write $\square \in S$. If $\square$ is not in set S, we write $\square \notin S$.

Problem Set №6

1. The time is .....

   .....



2. (a) What is a proper noun? What kind of letter does it start with?

   .....

   .....

   (b) Write down four proper nouns.

   - ..... • .....
   - ..... • .....

   (c) Now write down four common nouns.

   - ..... • .....
   - ..... • .....

3. Form the plurals of the following nouns:

   (a) cat: ..... (h) life: .....

   (b) dog: ..... (i) mouse: .....

   (c) book: ..... (j) foot: .....

   (d) tree: ..... (k) child: .....

   (e) potato: ..... (l) person: .....

   (f) tomato: ..... (m) woman: .....

   (g) leaf: ..... (n) man: .....

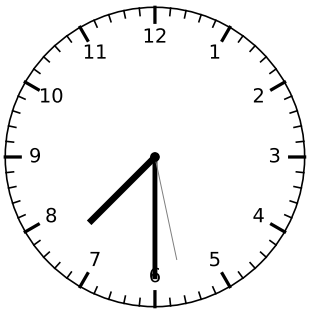
The plural form of a noun refers to more than one of that thing (one cat, two cats).

Most nouns form the plural by adding –s, but some nouns have irregular plurals (e.g. goose → geese).

4. Draw a Venn diagram to illustrate the sets $A = \{1, 2, 3, 4, 5\}$ and $B = \{2, 4, 6, 8\}$.

We describe the contents of sets using curly braces. For example, $S = \{1, 2, 3, 4, 5\}$ means that set S contains the elements 1, 2, 3, 4, and 5.

Problem Set №7



1. The time is .....

   .....

2. Read the following passage, and find five common nouns and five proper nouns.

   > It shall be lawful for the Queen, with the advice of the Privy Council, to declare by proclamation that, on and after a day therein appointed, not being later than one year after the passing of this Act, the people of New South Wales, Victoria, South Australia, Queensland, and Tasmania, and also, if Her Majesty is satisfied that the people of Western Australia have agreed thereto, of Western Australia, shall be united in a Federal Commonwealth under the name of the Commonwealth of Australia. But the Queen may, at any time after the proclamation, appoint a Governor-General for the Commonwealth.

   Five common nouns : .....

   .....

   .....

   Five proper nouns : .....

   .....

   .....

3. Barry the bee is a hard-working bee who counts the flowers he pollinates. How many did he pollinate the last three days?

Day	Flowers
Monday	142
Tuesday	332
Wednesday	96

   Number sentence: .....

   Answer: Barry pollinated .....

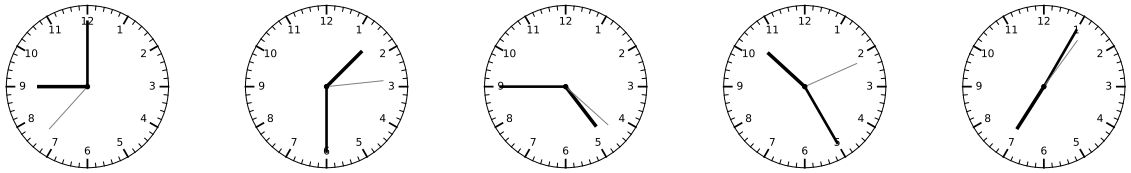
   ..... flowers.

4. Draw a Venn diagram for the sets $A = \{1, 2, 3, 4, 5\}$, $B = \{2, 4, 6, 8\}$, and $C = \{1, 2, 3, 15\}$.

Problem Set №8

1. What's the time on these clocks?

(a) (b) (c) (d) (e)



(a) .....

(b) .....

(c) .....

(d) .....

(e) .....

2. Calculate: 1423 - 442 = ...

3. Find four singular nouns and four plural nouns in the passage:

> Sir Reginald Pigglesworth, a pig in a top hat, liked to collect rubber chickens. He had chickens of all sizes: a gigantic chicken that clucked like a tuba, three grumpy chickens who wore tiny spectacles, and a flock of baby chickens that squeaked like a thousand mice. Every evening, he would line up his prized possessions on the mantelpiece, polishing each one with a special cloth.

(a) Four singular nouns: .....

.....

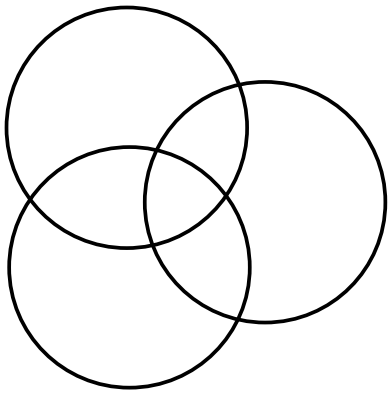
.....

(b) Four plural nouns: .....

.....

.....

4. Let $X := \{\clubsuit, \diamondsuit, \bigcirc, \times\}$, $Y := \{\diamondsuit, \heartsuit, \bigstar, \square\}$, and $Z := \{\diamondsuit, \bigstar, \triangle\}$. Complete the Venn diagram.



Problem Set №9

1. Underline the verbs in these sentences.

   A verb is a word that describes an action or a state of being (e.g. ran, ate).

   (a) The cat sat on the mat.

   (b) The dog chased the cat.

   (c) The cat swiped at the dog.

   (d) The dog ran away.

   (e) The cat purred.

2. Use a verb to complete these sentences:

   (a) I like to .....ice cream.

   (b) Boris ..... the ball.

   (c) Andrew .....the plate on the floor.

   (d) Emma ..... the book.

3. Let $X := \{\clubsuit, \diamondsuit, \bigcirc, \times\}$, $Y := \{\diamondsuit, \heartsuit, \bigstar, \square\}$, and $Z := \{\diamondsuit, \bigstar, \triangle\}$. Write 'true' or 'false' for each of the following statements:

   The symbol := means 'is defined as'.

   Remember, $\in$ means 'is an element of' and $\notin$ means 'is not an element of'.

   (a) $\clubsuit \in X$ .....

   (b) $\diamondsuit \in Y$ .....

   (c) $\bigstar \in Y$ .....

   (d) $\square \notin Y$ .....

   (e) $\alpha \notin Z$ .....

   (f) $\bigcirc \in X$ or $\bigcirc \in Z$ .....

   (g) $\bigcirc \in Y$ or $\bigcirc \in Z$ .....

   (h) $\times \in X$ and $\times \in Y$ .....

4. I have a box of piffles. Some piffles are ongles and the rest are gingles. All of the ongles are red. Most of the gingles are blue. If I take a red piffle from the box, is it definitely an ongle? Explain your answer.

   .....

   .....

   .....

Problem Set №10

1. Underline the verbs:

   > We hold these truths to be self-evident, that all men are created equal, that they are endowed by their Creator with certain unalienable Rights, that among these are Life, Liberty and the pursuit of Happiness.

Remember, a verb is a word that describes an action or a state of being (e.g., is, ran, ate).

This passage is from the American Declaration of Independence, written 250 years ago. Do you notice any differences in capitalisation rules, compared to modern English?

2. All of the boys in Mrs. Tutte's class have red hair. Some of the girls in the class have brown hair. Can Mrs. Tutte have a boy with brown hair in her class? Answer 'yes' or 'no' and give reasons.

   .....

   .....

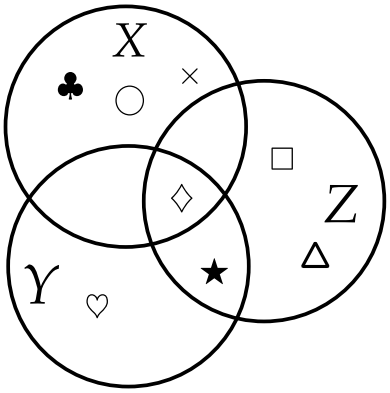
   .....

3. Let x represent some number. Suppose that $8 - x = 3$. What's x?

   Number sentence: $x =$ .....

   Answer: x is .....

4. Refer to the Venn diagram, then write 'true' or 'false' for each of the following statements:



   (a) $\clubsuit \in X$ ..... (e) $\bigstar \notin Z$ .....

   (b) $\diamondsuit \in Y$ ..... (f) $\heartsuit \in X$ or $\heartsuit \in Z$ .....

   (c) $\bigstar \in Y$ ..... (g) $\heartsuit \in Y$ or $\heartsuit \in Z$ .....

   (d) $\square \notin Y$ ..... (h) $\diamondsuit \in X$ and $\diamondsuit \in Y$ .....

5. Andrew bought 423 piffles. He sold 262 to Ben, who then sold six to Charlie. If everyone started out with no piffles, how many piffles does Andrew now have?

   Number sentence: .....

   Answer: Andrew now has .....

   .....

   ..... piffles.

Problem Set №11

1. For each sentence, underline the verb and squiggle under the nouns.

   (a) A whirlwind swept through the school.

   (b) The wind lifted up the classroom's roof.

   (c) The students ran to the bus stop.

   (d) The teacher cancelled school for the day.

   (e) The kids enjoyed their earlymark.

2. I have two bags of ergles. Most of the ergles are blongies, some are jongies, and the rest are plongies. All of the blongies are red. Most of the jongies are blue and some are black. Some of the plongies are green but the rest are yellow. I pluck a blongie at random. What colour ergle did I choose?

   .....

   .....

   .....

3. Suppose that $\square + 4 = 12$. What's the value of $\square$?

   Number sentence: $\square =$ .....

   Answer: $\square$ is .....

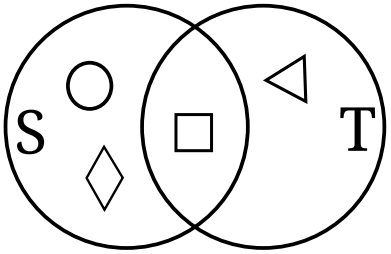
4. Refer to the Venn diagram.

   (a) $S = \{$ ..... $\}$

   (b) $T = \{$ ..... $\}$

   (c) $S \cap T = \{$ ..... $\}$

   (d) $S \cup T = \{$ ..... $\}$



The intersection of two sets is the set of elements that are in both sets. We write $S \cap T$ to mean the intersection of sets S and T.
The union of two sets is the set of elements that are in either set. We write $S \cup T$ to mean the union of sets S and T.

Problem Set №12

1. Underline the verbs, and squiggle under the nouns:

   Jerry stepped into the bath. The water was warm. He splashed around and had fun. Then, he got out and dried himself off. He dressed himself, brushed his teeth, and went to bed.

2. Look at the picture. Write down six verbs, corresponding to actions in the picture.

   (a) ..... (d) .....

   (b) ..... (e) .....

   (c) ..... (f) .....

3. Let $X := \{1,3,5,7\}$, and $Y := \{2,3,4,5\}$. Write 'true' or 'false' for each of the following statements:

   (a) $1 \in X$ ..... (e) $X \cap Y = \{3,5\}$ .....

   (b) $1 \in Y$ ..... (f) $X \cup Y = \{1,2,3,4,5,7\}$ .....

   (c) $1 \notin Y$ ..... (g) $5 \in (X \cap Y)$ .....

   (d) $3 \in X$ ..... (h) $5 \notin (X \cup Y)$ .....

4. Calculate: $2325 + 4196 =$ .....

Problem Set №13

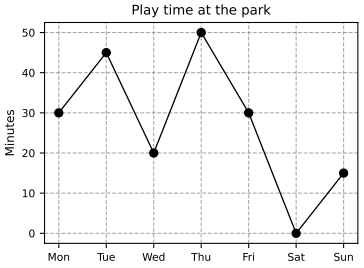
1. Underline the verbs, and squiggle under the nouns:

   Licorice the cat woke up early. He stretched and went into the parents' bedroom. He jumped on the bed and woke Dad up. Dad got up and fed Licorice. Dad made coffee then let Licorice outside.

2. Use a verb to complete each sentence:

   (a) Onk .....a unicorn.
   (b) Rob .....cake.
   (c) Mum .....ice cream.
   (d) I .....a cat.
   (e) My dog .....a shoe.
   (f) Bork ..... goo.

3. The chart shows how long the children played at the park each day in the last week.



   (a) Did the kids play every day?.....
   (b) When did they play the longest?.....
   (c) How long did they play?.....

4. Spronkus the unicorn found fifteen thousand, six hundred and thirty-two gold coins. He spent five thousand, two hundred and thirty-three of them on a golden castle. How many does he have left?

   Number sentence: .....

   Answer: Spronkus has .....

   .....

   ..... gold coins left.

5. Define $X = \{a, b, c\}$, $Y = \{c, d, e\}$, and $Z = \{e\}$.

   Remember, $\cap$ means 'intersection' (set overlap) and $\cup$ means 'union' (everything together).

   (a) $X \cap Y =$ .....
   (b) $X \cup Y =$ .....
   (c) $X \cap Z =$ .....
   (d) $X \cup Z =$ .....

Problem Set №14

1. Complete each sentence with a verb:

   (a) Jim ..... bananas.
   (b) Toby ..... books.
   (c) I ..... pebbles.
   (d) Em ..... a tiger.
   (e) We ..... a dog.
   (f) They ..... roses.

2. There are five million, two hundred and forty-three thousand, one hundred and twenty-three pixies in the Magic Forest. Two hundred and twenty-three thousand more arrive from Pixie Hollow.

   (a) Use Arabic numerals to write the starting number of pixies: ...

   .....

   (b) In Arabic numerals, how many arrived from Pixie Hollow? ....

   .....

   (c) As a number sentence, how many pixies are there now? .....

   .....

   (d) There are now .....

   .....

   .....

   ..... pixies in the Magic Forest.

3. Let $X = \{a, b, c\}$, $Y = \{c, d, e\}$, and $Z = \emptyset$. True or false?

   Remember, $\cap$ means 'intersection', $\cup$ means 'union', and $\emptyset$ is the empty set.

   (a) $X \cap Y = \{c\}$ .....
   (b) $X \cup Y = \{a, b, c, d, e\}$ .....
   (c) $X \cap Z = \emptyset$ .....
   (d) $X \cup Z = \{a, b, c\}$ .....
   (e) $X \cap Z = Z$ .....
   (f) $X \cup Y = Y$ .....

Problem Set №15

1. For each sentence, use the infinitive verb in parentheses to complete the sentence. You may use any tense you like.

The infinitive is the base form of the verb, without any tense or conjugation. It always starts with *to*. For example, *to eat* is the infinitive form of the verb in the sentence *Harry eats bananas*.

   (a) (*to eat*) Harry ..... bananas.

   (b) (*to write*) Barry ..... books.

   (c) (*to throw*) I ..... pebbles.

   (d) (*to see*) Em ..... a tiger.

   (e) (*to play*) We ..... with a dog.

   (f) (*to smell*) They ..... roses.

2. Complete each sentence with a noun:

   (a) Aaron eats .....

   (b) We have a .....

   (c) Rufus is chasing a .....

   (d) I saw a .....

   (e) They are flying a .....

   (f) Andrew is painting a .....

3. Define $X = \{1,2,3\}$, $Y = \{2,3,4\}$, and $Z = \{5\}$. True or false?

Remember: $\cap$ means 'intersection', $\cup$ means 'union', and $\emptyset$ is the empty set.

   (a) $X \cap Y = \{2,3\}$ ..... (d) $X \cap Z = \emptyset$ .....

   (b) $X \cup Y = \{1,2,3,4\}$ ..... (e) $3 \in (X \cap Y)$ .....

   (c) $X \cup Z = \emptyset$ ..... (f) $3 \notin (X \cup Y)$ .....

Problem Set №16

1. Complete each sentence with an article.

An article introduces a noun. It can be indefinite (*a*, *an*) or definite (*the*).

   (a) Kim broke .....vase.
   (b) Tom had .....book.
   (c) Bob ate .....apple.
   (d) I saw ..... plane.
   (e) They flew ..... plane.
   (f) Andrew painted .... picture.
   (g) I made ..... mess.
   (h) They found .....treasure.

2. Write the following numbers out in Arabic numerals:

Remember the groupings:

$$\underbrace{123}_{\text{millions}},\ \underbrace{456}_{\text{thousands}},\underbrace{789}_{\text{ones}}$$

   (a) Four hundred and fifty-six

   .....

   (b) Twenty-three thousand, nine hundred and two

   .....

   (c) Eight million, seven hundred and sixty-five thousand, three hundred and twenty-one

   .....

   (d) Two hundred and eighty-seven million, six hundred and fifty-four thousand, three hundred and twenty-one

   .....

   (e) Nine hundred and ninety-nine million, nine hundred and ninety-nine thousand, nine hundred and ninety-nine

   .....

3. Calculate: $123,456 + 789,012 =$ .....