

WARM-UP

1.

a) Skip-count by 4s from 4 to 40: _____

b) Skip-count by 4s – name first 10 terms starting with 1: _____

2.

Compare expressions without calculating their values.

Use signs “ = ”, “ < ”, and “ > ”:

$7 - 3 _ 11 + 1$

$17 - 11 _ 17 + 1$

$a - 6 _ a - 4$

$31 + b _ 31 - b$

$25 + a + 1 _ 25 + a$

$14 - 8 _ 14 - 8 - 1$

3.

a) Find a pattern rule in the following sequence: 121, 115, 109,

b) Using this rule, find the 7th term of the sequence.

Rule of the pattern: _____

7th term: _____

4.

a) Tom is 4 years older than Mark. Mark is 10 years old. How old is Tom? _____

b) Two children in a family are ages 10 and 12. Alan is older than Kate.

How old is Alan? _____

c) In a swimming race, Jane finished before Kim; Pam finished before Jane.

(1) Who has finished first? _____

(2) Who has finished last? _____



REVIEW I“Mystery” Box

Number In \longrightarrow Mystery Box \longrightarrow Number Out

5.

Game – “Mystery” box or “Guess my rule”:

1. IN – any number, OUT –
2. IN – any number, OUT –

Operations with number “0”.

$$a - a = 0; \quad 4 - 4 = 0$$

$$b + 0 = b; \quad 4 + 0 = 4$$

$$c - 0 = c; \quad 4 - 0 = 4$$

NEW MATERIAL**6.**

Emma collected information about the cats and dogs that children in her class have. She filled in the table below, but missed out one number.

	<i>Has a dog</i>	<i>Does not have a dog</i>
<i>Has a cat</i>	8	4
<i>Does not have a cat</i>	12	

1. Explain how to find the missing number if there are 30 children in Emma's class.
2. How many children own at least one of these pets?
3. Do more children own cats rather than dogs?
4. Could it be true that some of the children do not have any pets?

7. There are 42 girls and 38 boys in the third grade of your school. 62 children are using bus to get to school and 10 girls are walking to school. How many boys are walking to school? Hint: break a problem into several small problems.

		Bus	Walking	Total
Boys				38
Girls			10	42
Total	62			

Solving problems with two variables using two-way table.

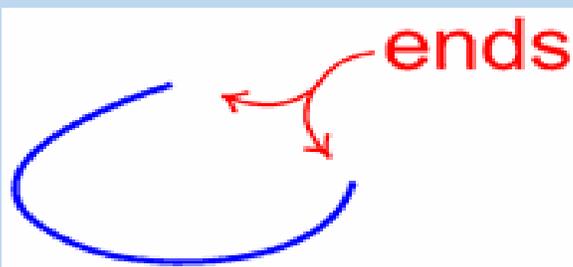
Two-way table shows data that belong to two different categories. The data from one sample group is shown as it relates to two different categories.

REVIEW II

Lines can be straight or curved, “Open” or “Closed”

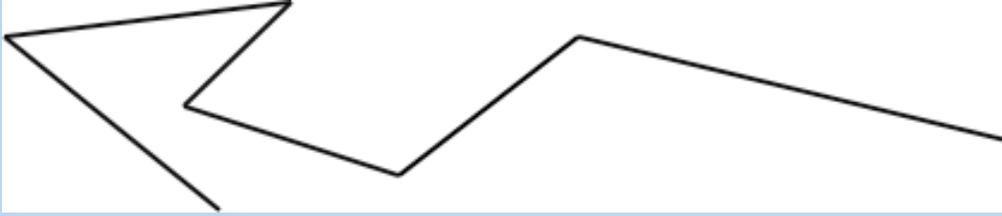
Curves can be “open” and “closed”.

Open curve is a curve with end points (in other words, the ends don't join up).



Close curve has no end points.

A **polygonal chain** is a collection of line segments, connected end to end:



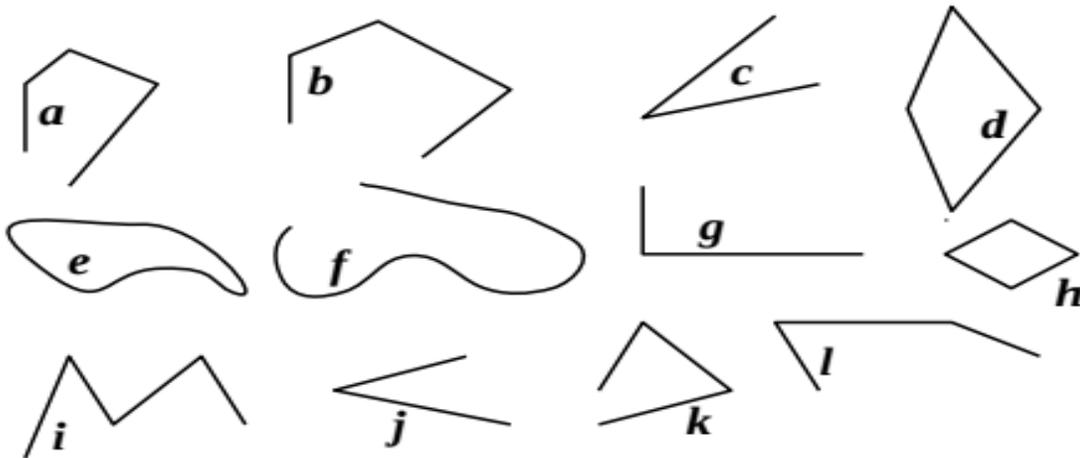
Polygonal chain can be “open” and “closed”

For polygonal chain, the sum of lengths of the segments forming it is called the **length of the chain**.

8.

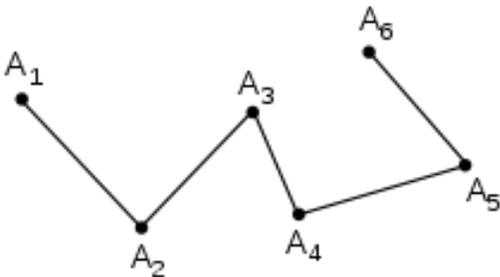
Find all curved lines and list them here: _____

Find all open polygonal chains and list them here: _____



9. How many segments does polygonal line below have? How many vertices (points where segments are connecting to each other or end)? Is this chain closed or open?

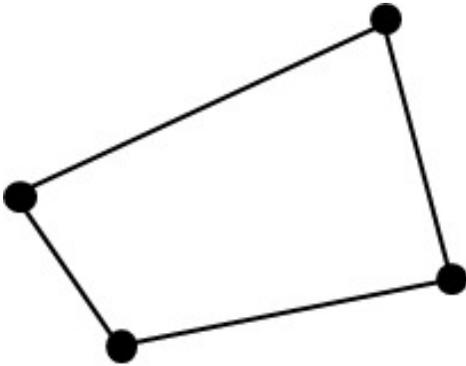
What should be done to make it closed?



10.

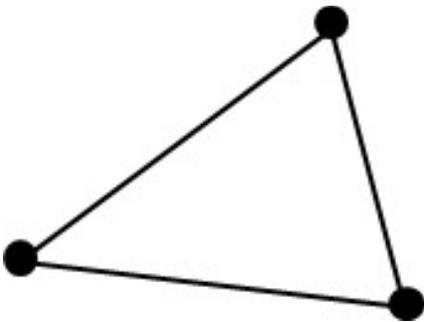
The students in Ms. Svetlana's class were drawing geometric figures. First she asked them to draw some points, and then she asked them to draw all the line segments they could that join two of their points.

1. Steven drew 4 points and then drew 4 line segments between them:



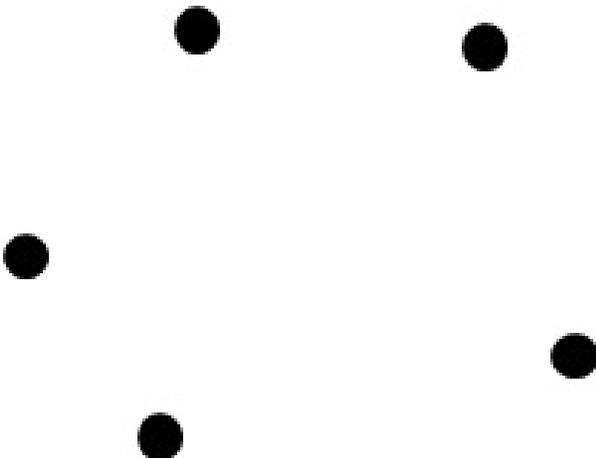
Are there other line segments that Steven could have drawn?

2. Jonathan drew 3 points and then drew 3 line segments between them:



Are there other line segments that Jonathan could have drawn?

3. Here are 5 points. Draw all the line segments you can connecting pairs of them.



Challenge yourself

11.

Six eggs look identical except one is lighter. You have a balance scale and you can weight eggs only 2 times. How can you find out which one is lighter?



Did you know ...

The Story of Zero.

Once upon a time, zero wasn't really a number. Its journey to the fully-fledged number we know and love today was a meandering one. Zero was invented independently by the Babylonians, Mayans and Indians. Though ancient civilizations already knew the concept of 'nothing,' they did not have a symbol or letter for it.

- The Sumerians were the first people in the world to have introduced a counting system. The Babylonians used the Sumerian counting system to develop a number system. They had a placeholder symbol, to show that there were no tens in 1101, for instance.
- 600 years after the Babylonians, the Mayans also developed zero as a placeholder.
- The concept of zero did come from the Babylonian system, but it was in India where zero became an important part of the number system.
- In India, mathematical equations were chanted in poetry. Words, which meant 'void,' 'sky,' 'space' all represented nothingness or zero.
- In 628 AD Indian scholar Brahmagupta wrote rules for mathematical operations like addition and subtraction, using zero.
- Aryabhatta used zero in the decimal system.
- Zero soon spread to China and the Middle East. Mohammed ibn-Musa al-Khowarizmi, a Persian mathematician, proposed that a small circle be used if no number was being used in the tens place.
- The Arabians called this 'siphir' or empty. Al-Khowarizmi used zero to invent Algebra.
- Later the number system was brought to Europe, around 900 AD, by the Arab traders and was called the Hindu-Arabic system. Till then the Romans did not have zero in their number system. Zero is now an integral part of mathematics all over the world.