# Lesson 8. Classwork

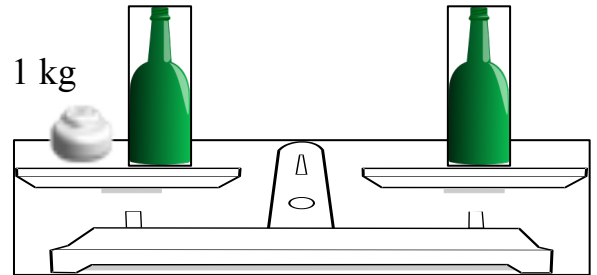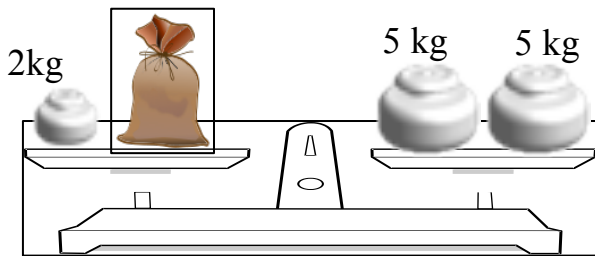**1.** Calculate the sum using the best method.

$13 + 16 + 19 + 22 + 25 + 28 + 31 + 34 + 37 =$ _____

**2.**

How much a bag weight?

One of the bottles is full and another one is empty. Find the empty one.

2kg    5 kg    5 kg

1 kg

**3.** Nick was supposed to add together the numbers: 41, 273, and 136. He wrote them on a graph paper and added them as shown. What did he do wrong?  Can you help him by adding the numbers correctly?

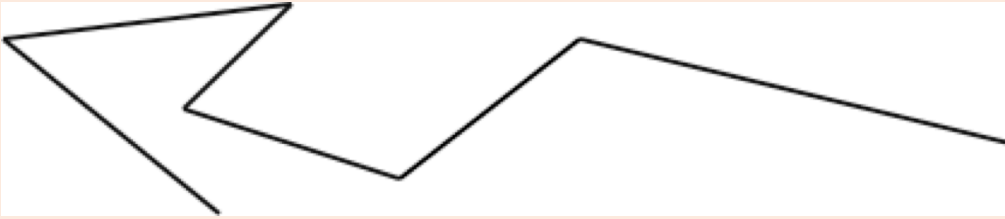|   | 4 | 1 |   |
|---|---|---|---|
| + | 2 | 7 | 3 |
|   | 1 | 3 | 6 |
|   | 8 | 1 | 9 |

**4.** Anna and Lena labeled point A on a number line and wrote 3 consecutive numbers each. Anna wrote: $A + 1$, $A + 2$, and $A + 4$. Lena wrote $A - 1$, $A$, and $A + 1$. Which of them is right?

_____

## NEW MATERIAL

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

Unlike a polygon, we do not require that the last point of a polygonal chain be connected to the first one.

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

**5.** Measure the segments of the polygonal chain and write their lengths in cm. What is the total length of the open polygonal chain?
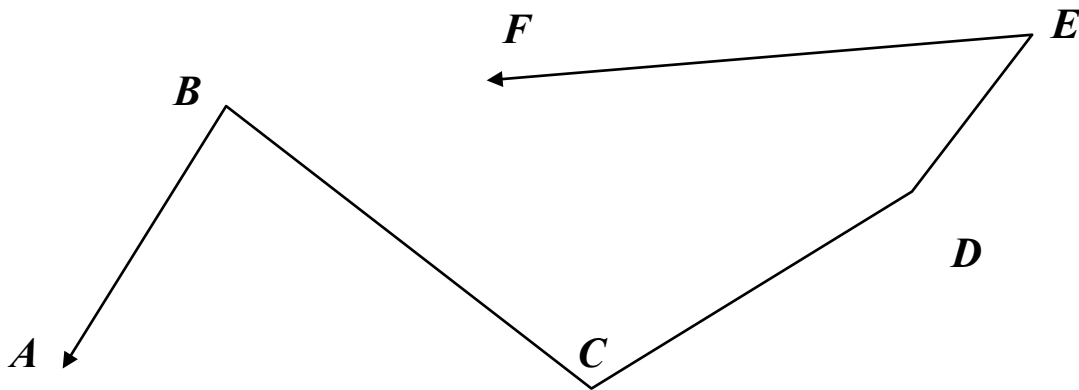
[AB]=_____

[BC]=_____

[CD]=_____

[DE]=_____

[EF]=_____

TOTAL LENTH =_____=

**Polygon** comes from Greek. **Poly-** means "many" and **-gon** means "angle".
POLYGON comes from Greek: POLY – means "many" and GON means "angle"

POLYGON is a closed polygonal chain.
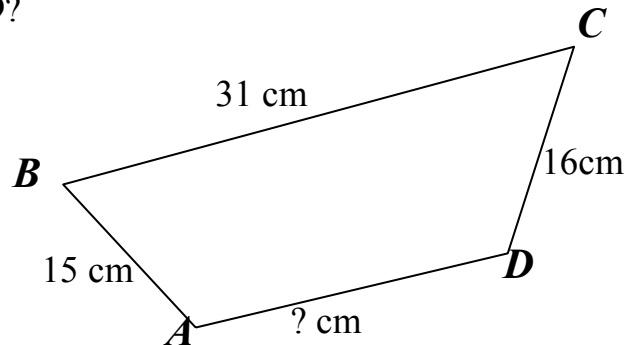
Length of the POLYGON = sum of lengths of all sides = PERIMETER of a POLYGON
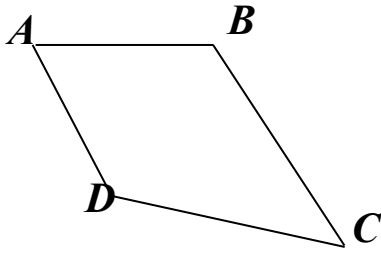
PERIMETER = P =[AB]+[BC]+[CD]+[DA]

**6.**

The perimeter of the quadrilateral **ABCD** equals 84 dm. What is the length of side **AD**?

31 cm

16cm
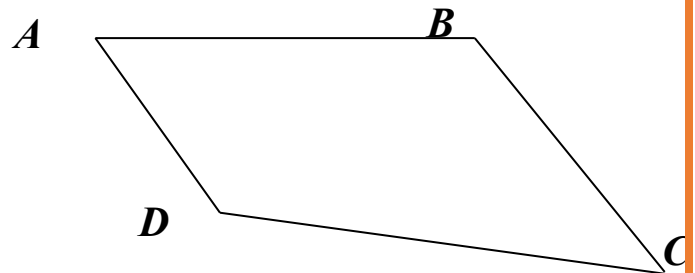
15 cm

? cm

**7.**

Measure the sides of the quadrilateral with a ruler and find its perimeter.

AB = ____cm          BC = ____cm

CD = ____cm          AD = ____cm

P=__cm + __cm + __ cm + __cm = __cm

**Expressions:** A mathematical phrase that can contain a combination of numbers, variables, and operations.

A **numerical expression** is a formula with numbers and arithmetic operations, which can be computed to give a numerical value.

Example:  25 + 7 – 9, we can calculate  its value: value is 23

A **variable** is a symbol which is used in place of an unknown number.

Example: x +7

We can compare expressions , using signs < (less than), > (greater than) and = (equals). Example, 4 + 5 > 7, and 5 + 6 = 14-3

Formulas involving signs < and > are called **inequalities**;

Formulas involving = are called **equalities**.

**8.**

Circle the expressions with letters. Underline expressions that contain only numbers.

| | | |
|---|---|---|
| *3 + 7* | *a + 7* | *a + b* |
| *65 + a* | *901 – 1* | *a – b* |
| *15 – 9* | *a + c* | *16 – b* |

An **equation** is a mathematical statement that two expressions are equal. An equation will always contain an equal sign with an expression on each side.

Algebraic equations contain variables – symbols that stand for an unknown quantity. Variables are often represented with letters, like *x*, *y*, or *z*.

Equation with numbers only:_____

Equation including variable:_____

An important property of equations is one that states that you can add the same quantity to both sides of an equation and still maintain an equivalent equation. Sometimes people refer to this as keeping the equation "balanced". If you think of an equation as being like a balance scale, the quantities on each side of the equation are equal, or balanced.

Let's look at a simple numeric equation, $3 + 7 = 10$



**Addition Property of Equality**

For any numbers $a$, $b$, and $c$:

If $a = b$, then $a + c = b + c$.

If two expressions are equal to each other, and you add the same value to both sides of the equation, the equation will remain equal.

**9.**

Solve for x using an addition property of equality:

$X - 20 = 17 + 53$          $805 - 225 = x - 25$          $x - a = 10 + b$

_____          _____          _____

_____          _____          _____

**10.**

Compare:

A + R          AA + R          K + Y          K + U,          if Y is smaller than U
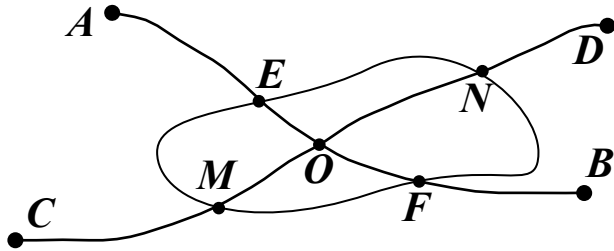
J + L          K + L          B + Y          B + U,          if Y is smaller than U

## REVIEW

Look at the subway plan.  Each point is a subway stop.



a) Name the stations on line **AB** starting with station **A**. _____

b) Find the closed curve line on the plan.

   At which points does line **AB** intersect the closed curve line? _____
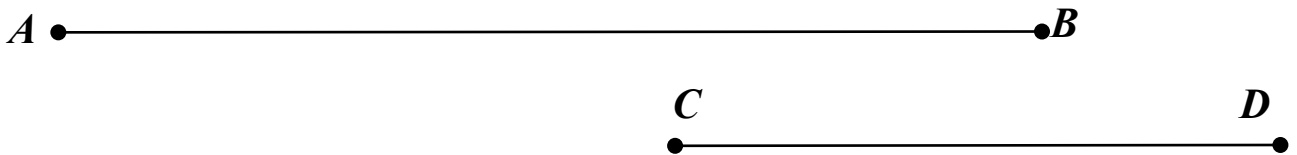
   At which points does line **CD** intersect the closed curve line? _____

c) At what point do the lines **AB** and **CD** intersect? _____

d) Choose a path from **A** to **D,** which will allow you to pass though the least number of points?  Trace it.

**11.**  Which segment is shorter?  By how many centimeters?



_____

## Challenge yourself

**12.**  A school has a total of 75 students on three teams. The first team has 25 students, the second one has 24 students. How many students are on the third team?

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