Math 2   Classwork 9

WARM UP

1 Fill in the tables:

5m	3dm	5m3dm	100cm	20cm	120cm
_____ cm	_____ cm	_____ cm	_____ dm	_____ dm	_____ dm

5*l*	1*l*	5000m*l*	1kg	3 kg	2000 g
_____ ml	_____ ml	_____ *l*	_____ g	_____ g	_____ kg

2 Calculate:

```
      6  7              1  0  5              1  1  4
  -   5  8          -      6  6          -      2  9
  _____       _____          _____


      1  0  8             3  0  9             4  1  9
  +      1  9        +      2  3          +   2  1  4
  _____       _____          _____
```

Homework Review

1. Calculate using commutative property of addition:

Example: 6 + 15+ 4 + 5 = (6 + 4) + (15 + 5) = 10 + 20 = 30

17 + 7 + 13 + 3=_____=_____

2 + 21 + 19 + 8 = _____=_____

1+ 35 +19 + 5 =_____=_____

17 + 41+ 3 + 19 = _____=_____

2. Compare, using >, <, or =:

23 cm ____ 5 cm   68 cm ____ 6dm and 8 cm   3 dm _____ 36 cm

180g ____ 18kg   51kg ____ 510g   700g ____ 70kg

500 mL ___ 1L   9L ____ 950mL   3L ____ 350mL

New Material I

In geometry, a **polygonal chain** is a is a collection of line segments, connected end to end and not self-intersecting. Polygonal chain can be "open" or "closed".
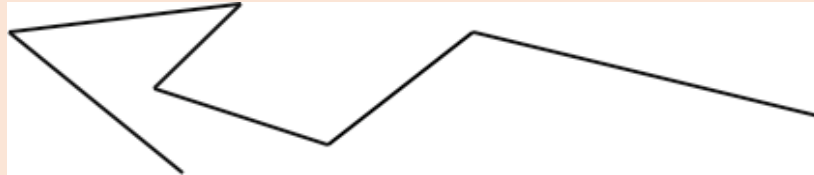
If three or more line segments connected end to end is called a **Polygon.**

- The line segments forming the polygon are called sides.
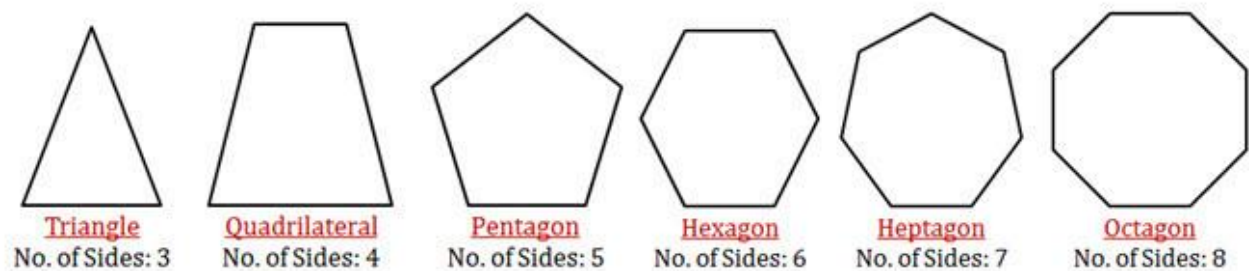- The point of junction of two line segments is called a vertex.

Number of vertices of a polygon is equal to the number of line segments or sides.
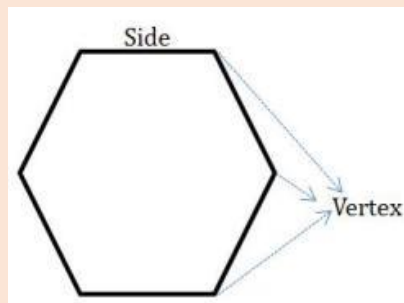
A polygon is any **shape** made up of straight lines that can be drawn on a flat surface, like a piece of paper.
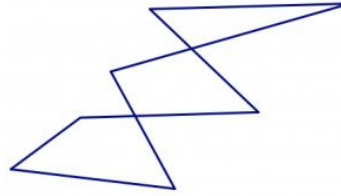
POLYGON comes from Greek: POLY – means "many" and GON means "angle"

Different types of polygons:

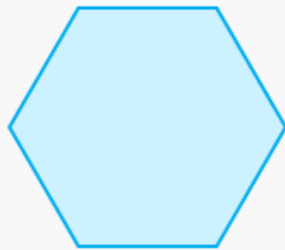| Triangle	Quadrilateral	Pentagon	Hexagon	Heptagon	Octagon
No. of Sides: 3	No. of Sides: 4	No. of Sides: 5	No. of Sides: 6	No. of Sides: 7	No. of Sides: 8

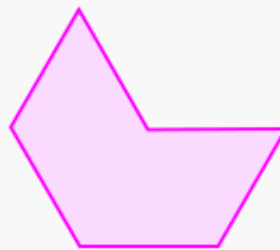Polygon   NOT Polygons - WHY?

Types of Polygons
When the length of all the sides and measure of all the angles are equal, it is a **regular polygon**,
otherwise it is an **irregular polygon**

Regular Hexagon   Irregular Hexagon

3

How many segments does polygonal chain below have? How many vertices (points where
segments are connecting to each other or end)? Is this chain closed or open?
Show how to make it closed with one line segment and with two line segments (you have 2
separate drawings to do it)

A_1 A_6 A_3 A_5 A_4 A_2
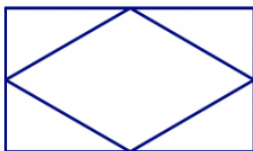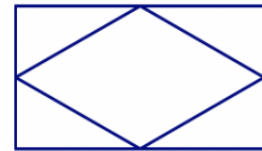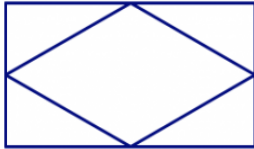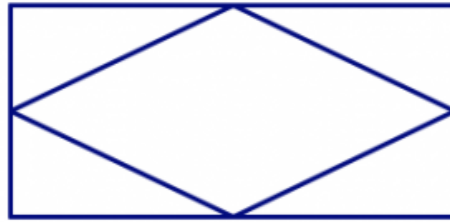
A_1 A_6 A_3 A_5 A_4 A_2

3

Polygonal chain. Types of polygons. Perimeter.
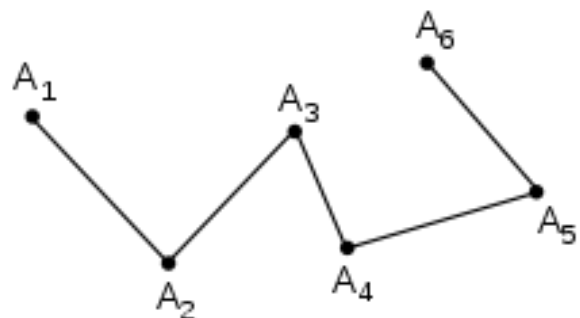
4

In the pictures below, there are polygons hidden in the design. In each design, find all of the triangles, quadrilaterals, pentagons, and hexagons. How can you be sure you've found them all and haven't counted any twice?
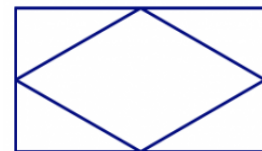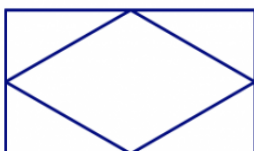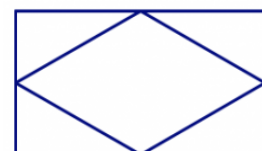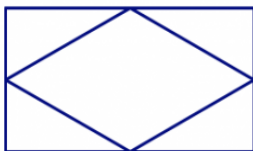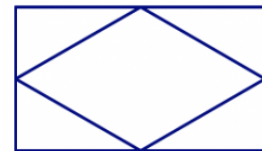
POLYGON is a closed polygonal chain.

Length of all segments of that chain = sum of lengths of all sides of the polygon
= PERIMETER of a POLYGON (P)
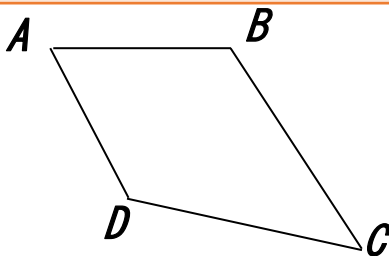
$$\text{Perimeter} = P = \overline{AB} + \overline{BC} + \overline{CD} + \overline{DA}$$

Perimeter of an irregular polygon = sum of all sides

Polygonal chain. Types of polygons. Perimeter.
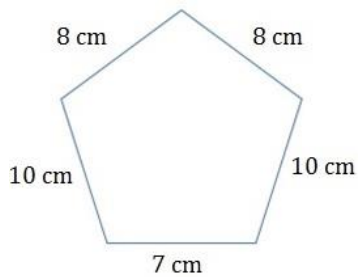
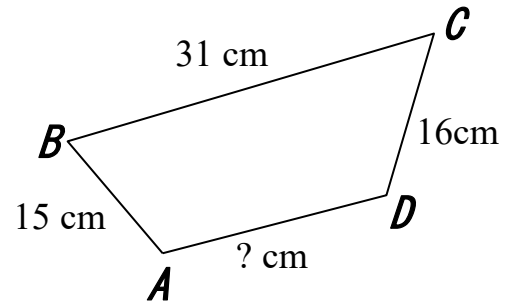**5**   Find the perimeter of the given polygon. P = _____

8 cm   8 cm
10 cm   10 cm
7 cm

6   The perimeter of the polygon **ABCD** equals 84 cm.
What is the length of side $\overline{AD}$?

$\overline{AD}$ = _____

31 cm
C
B
16cm
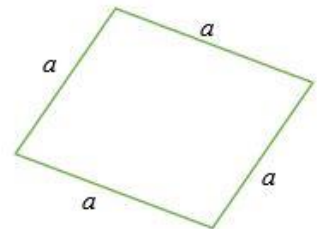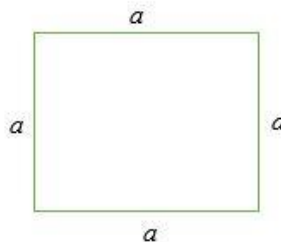15 cm
D
? cm
A

Perimeter of a regular polygon = (length of one side) × number of sides

7   If a is the length of the side of the square, find the perimeter of each square.
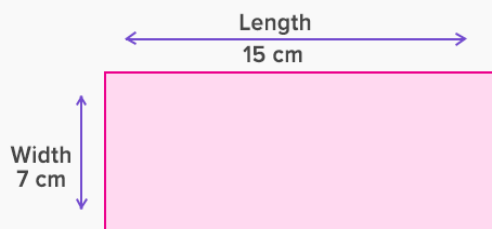P1 = _____
P2 = _____

a
a   a
a

a
a
a
a

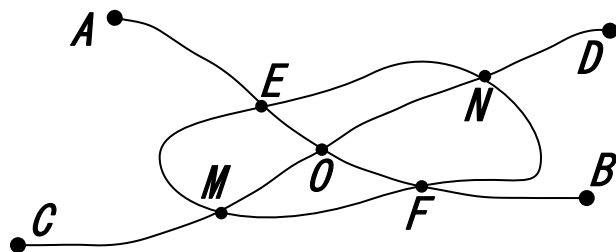**8**   Find the perimeter of rectangle:

Length
15 cm

Width
7 cm

P = _____ = _____ cm

What is the most optimal way to calculate the P of any rectangle? P =

5

9

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

a) Name the stations on the subway line **AB**, starting with the 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 with a pencil or pen.

10

Solve for x:

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

_____   _____   _____

_____   _____   _____

_____   _____   _____

_____   _____   _____

11

There are 5 daughters in the family. Each daughter has 1 brother. How many children are there in the family? _____

Did you Know …?

Perimeter

The word perimeter has been derived from the Greek word 'peri' meaning around, and 'metron' which means "measure".

We often find the perimeter when putting up Christmas lights around the house or fencing the backyard garden. Other examples may include finding the total length of the boundary of the soccer field or the length of the crochet or ribbon required to cover the border of a table mat. The perimeter of a polygon is measured in centimeters, meters, kilometers, yards etc.

The first recorded use of perimeters in the west was in ancient Babylon, where they used it to measure the amount of land that was owned by different people for taxation