Math 3
Classwork 7

WARM-UP

1 Simplify the following expressions:

$29 + x + 13 - 29 - x =$ _____

$34 + x - 34 - x + y =$ _____

$a + b - b + 45 - a - 44 =$ _____

2 Solve for x (try to do in mentally, without writing down):

a) x + 111 = 222 _____

b) 432 – x = 200 _____

c) 100 = x + 50 _____

3 Calculate:

a) 128 + 432 + 201 =

b) 408 + 805 + 306 =

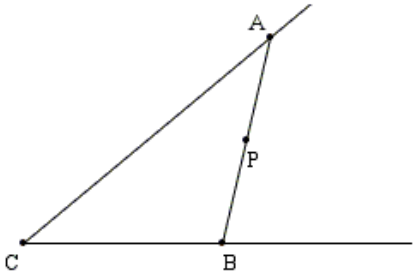
Homework Review

1. **Interior and Exterior of an Angle.**

a) Does point P belong to an $\angle ACB$? _____

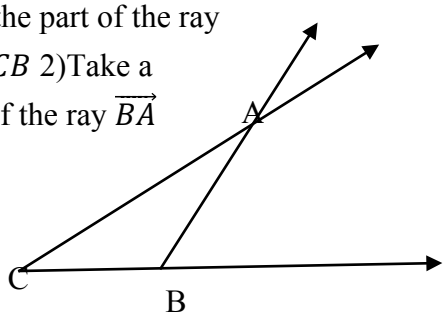
Do all points of a ray $\overrightarrow{BA}$ belong to the $\angle ACB$? _____

Does a segment $\overline{AB}$ belong to an $\angle ACB$? _____



b) Do all points of a ray $\overrightarrow{BA}$ belong to the $\angle ACB$?___

1) Take a blue pencil and follow the part of the ray $\overrightarrow{BA}$ which is inside the angle $\angle ACB$ 2)Take a green pencil and follow the part of the ray $\overrightarrow{BA}$ which is outside the angle $\angle ACB$



New Material I

Multiplication is a way to solve problems with equal groups:

There are 4 groups of stars, 3 stars in each group. $4 \times 3 = 12$ stars altogether.
Multiplication is NOT only a "shortcut" for repetitive addition.

We use multiplication to solve a variety of different problems. For example:

1. The blue rod is 3 times as long as red rod.
2. The truck is twice as heavy as a car

4 Solve the problems:

a) The cost of each book is $4. What is the cost of 3 books? _____

b) The Smith family has five members. Each member has a small towel and a bath towel. How many towels hang in the bathroom? _____

c) The Jones family orders four pizzas to eat. Each pizza is sliced into four parts. How many pizza slices do they get after cutting all four pizzas? _____

d) Alan is 8 years old. His dad is 4 times older than Alan. How old is Alan's dad?_____

e) A rope was cut into 8 pieces. Each piece was further cut into 5 pieces. How many pieces was a rope split into? _____

5 Write down as an algebraic expression:

a) A basket contains 5 oranges. Another basket contains x oranges. How many oranges are in both baskets? _____

b) Each box contains 12 pencils. How many pencils are in x such boxes? _____

c) Ann had eight balloons. She gave y balloons to her sister. How many balloons have left?

_____

6. Compare expressions, using <, >, =:

7×5 ___ 6×8 $\quad\quad$ $12 + 12 + 12$ ___ 12×4

3×9 ____ $4 \times 9 - 9$ $\quad\quad$ 4×6 ___ $3 \times 6 + 6$

REVIEW

7 Calculate and express the answer in dm and cm:

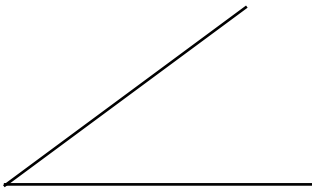
3 dm 7 cm + 4 dm 5 cm = _____

26 cm + 3 dm 8 cm = _____

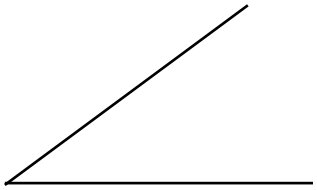
7 dm 2 cm – 56 cm = _____

8 Draw a second angle for each case so that the intersection of the two angles would be:

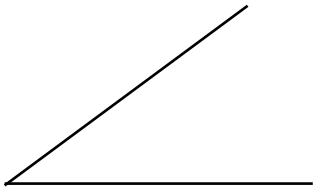
a) ...a point;



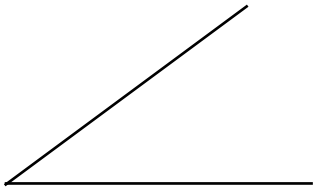
c). ...a triangle;



b). ...a ray;



d). ... a line seg



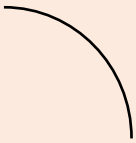
9 Find x in the equation x + a = 89 for the following values of a:

a	1	27	37	44	54	0
x						

New Material II

Types of Lines:

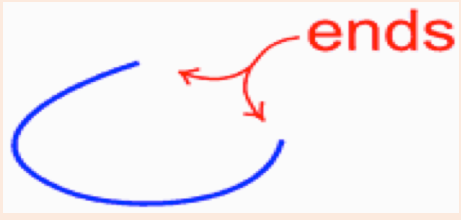
Straight line: 

Curved line: 

Both types of lines can be “open” and “closed”

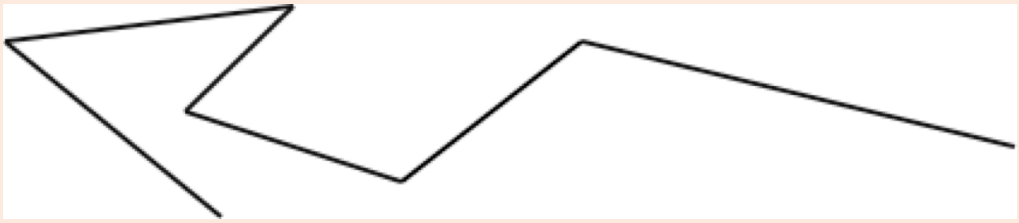
Curves can be “open” and “closed”.

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



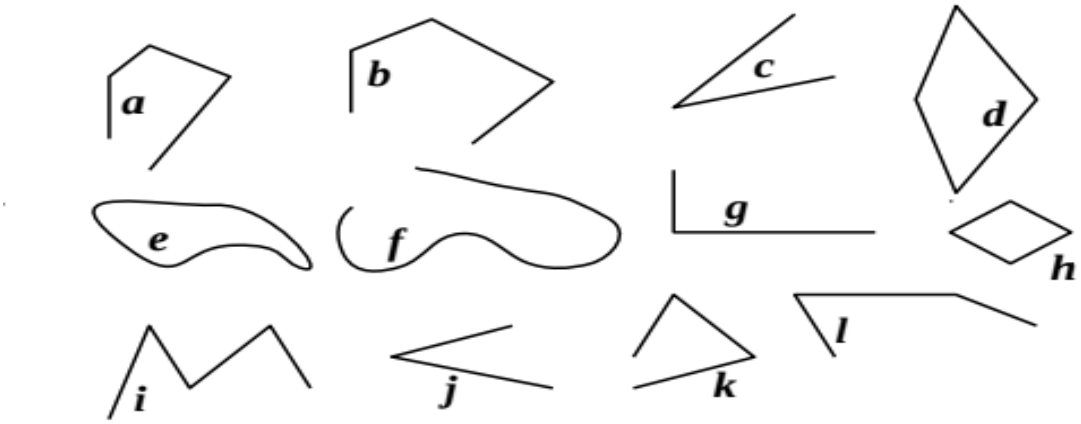
Close curve has no end points.

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

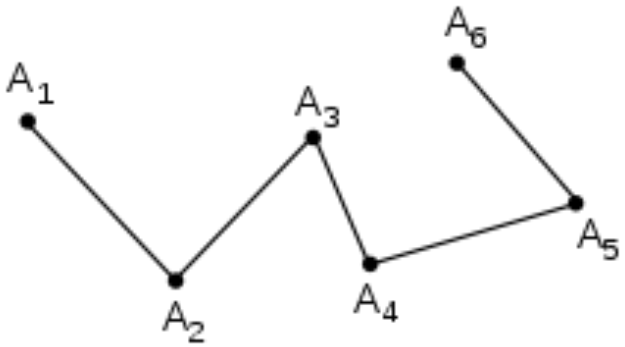


Polygonal chain can be “open” and “closed”

10 Find all curved lines and list them here: _____
Find all open polygonal chains and list them here: _____



11 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?



12. Compare using >, <, or =:

$a \square a + c$	$a + b \square b + a$	$38 - b \square 68 - b$
$b \square b - 5$	$k + 26 \square 62 + k$	$a - 0 \square a + 0$
$4 \square d - d$	$54 + n \square 54 - n$	$c - 19 \square c - 90$

Did you Know …?

Why do we use x for the Unknown in Math?

For hundreds of years, x has been the go-to symbol for the unknown quantity in mathematical equations. So, who started this practice? There are controversial historical accounts for it.

At the end of the 16th century, François Viète introduced the idea of representing known and unknown numbers by letters, nowadays called **variables**, and the idea of computing with them as if they were numbers—in order to obtain the result by a simple replacement.

In his landmark work, *La Géométrie* (1637), Descartes solidified the movement to symbolic notation by instituting the convention of using the lowercase letters at the beginning of the alphabet for known quantities (e.g., a, b and c) and using those at the end of the alphabet for unknown quantities (e.g., z, y and x).
Why? And why x more than y, and z for unknowns? Nobody knows. It has been speculated that the prominence of x being used more than y and z for unknowns in this work had to do with typesetting; one story goes that it was Descartes' printer who suggested x be the principle unknown in *La Géométrie* because it was the letter least used and so the one he had more letter blocks available to use. Whether this is true or not, Descartes used the x to be an unknown at least as early as 1629 in various manuscripts,