Math 3, Classwork 6

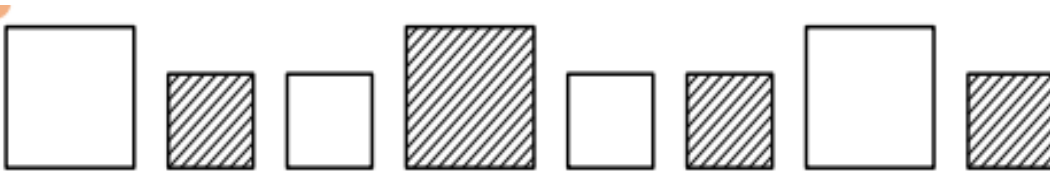**1.** Find the sum using the most convenient method.

$$5 + 15 + 25 + 35 + 45 + 55 + 65 + 75 + 85 + 95 =$$

2. Find pairs that add to 50.

_____

_____

_____

_____

_____

3. Continue pattern – add 3 more rectangles.

4. Write down ALL two-, and three-digit numbers that can be written using the digits 5 and 0.

Two-digit:
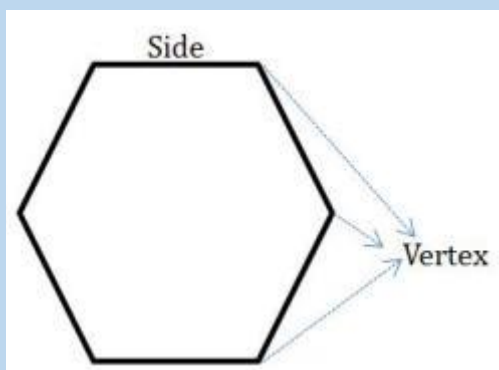
_____

Three-digit:

_____

REVIEW I

In geometry, a **polygonal chain** is a connected series of line segments.
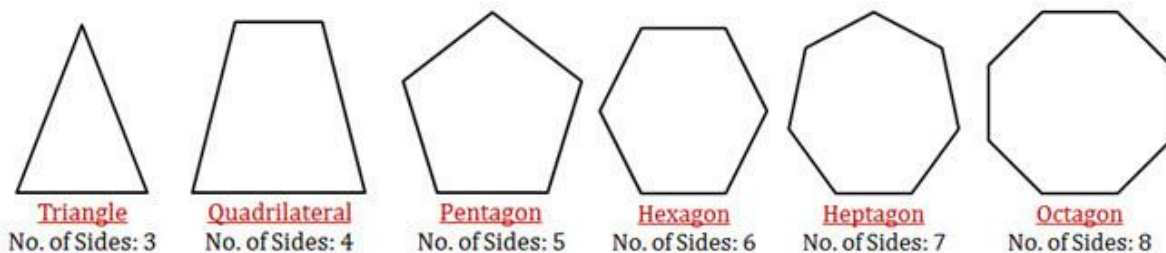
Polygonal chain can be "open" or "closed".

If three or more line segments form a closed loop it is called **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.

Different types of the 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

Triangle: 3 points (vertices) connected by 3 line segments

**Quadrilateral**: 4 vertices, connected by 4 segments

Pentagon (5 vertices), **Hexagon** (6 vertices), and so on.

All of them are special cases of a **polygon**: a figure consisting of some number of points (**vertices**), connected with line segments to form a closed figure. These line segments are called the **sides** of the polygon.

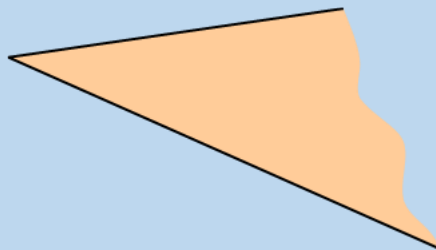**A Perimeter** of a polygon is the sum of lengths of its sides.

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

C

31 cm

B

16 cm

15 cm

D

A   ? cm
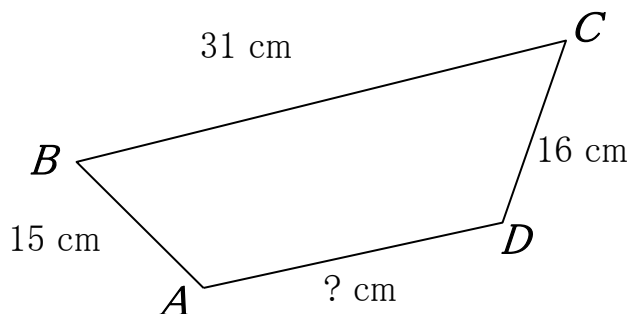
6.

An **angle** is a figure formed by two rays sharing a common end point (vertex).
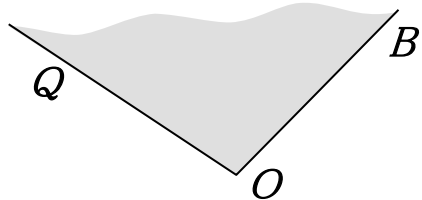
Every angle divides the plane into two regions: points inside the angle (that is, between the rays) and points outside the angle.
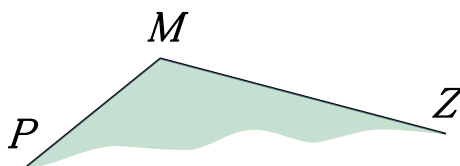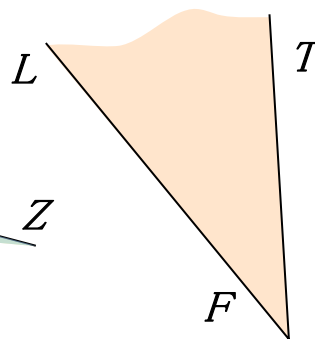
If the vertex of the angle is point **A** and the two sides are rays **AB** and **AC**, then the angle is denoted ∠**BAC** or simply ∠**A**

The word *angle* comes from the Latin word *angulus,* meaning "a corner."

Denote each angle in two different ways.

L   T

M

Q   B

P   Z
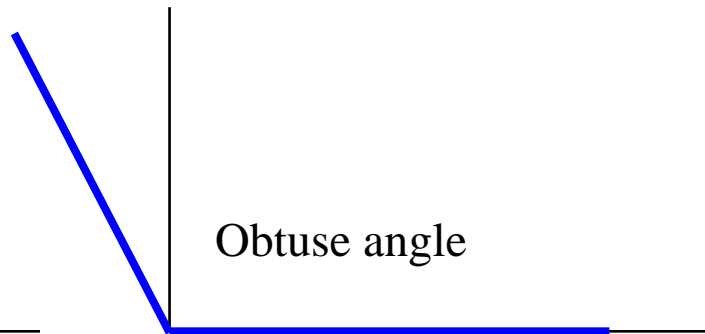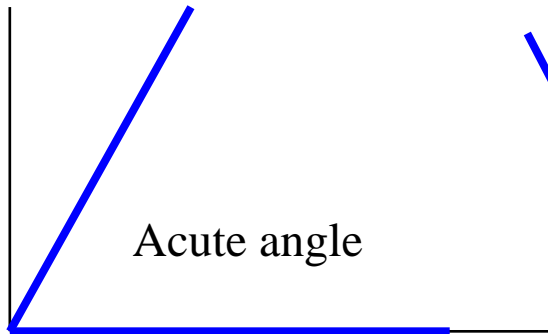
O

F

_____   _____   _____

3

Types of angles:

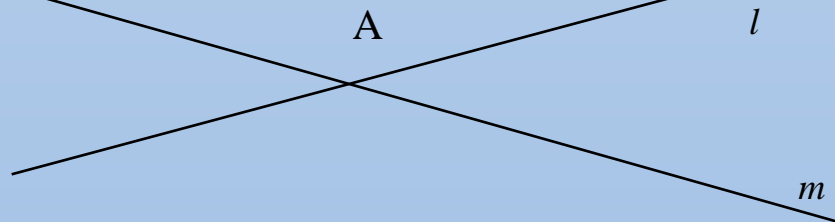An **acute angle** is an angle that is smaller than a right angle.

An **obtuse angle** is an angle that is larger than a right angle.

Acute angle   Obtuse angle

One line divides a plane into two parts. **Straight angles.**

Two lines divide a plane into four parts. Four angles.

A   *l*

m

If a straight line crossing another straight line makes the adjacent angles equal, then each of those angles is called a **right angle**; and straight lines are called **perpendicular** lines.
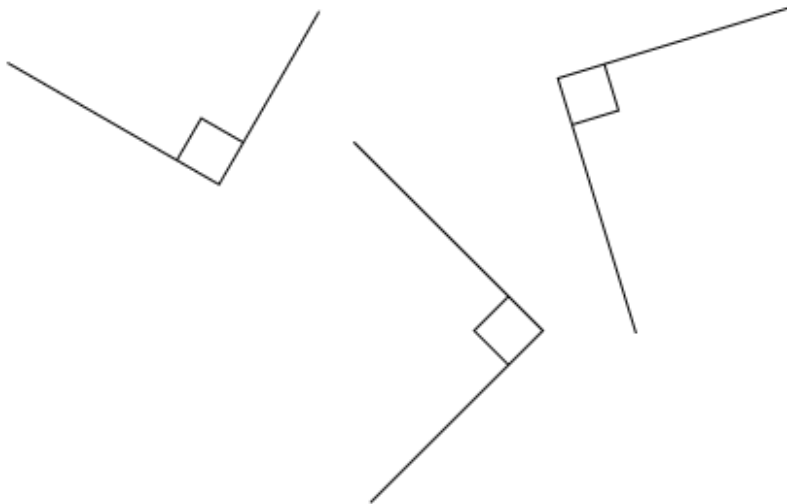

l

A   *m*
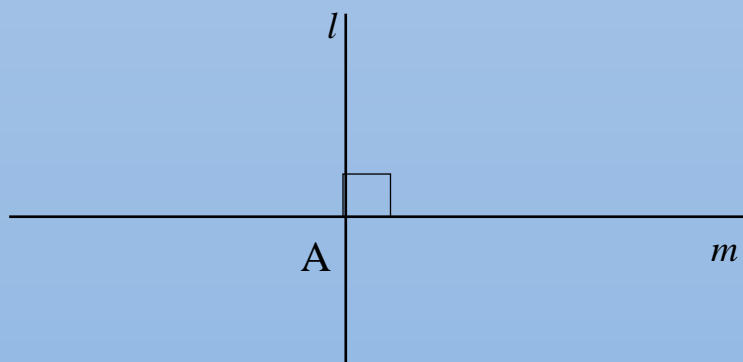
7.

Making a Right Angle Template.

Fold a sheet of paper in half and then in half again. Using a ruler trace the creases with a pencil. How many straight lines did you get? How many angles do these lines form?
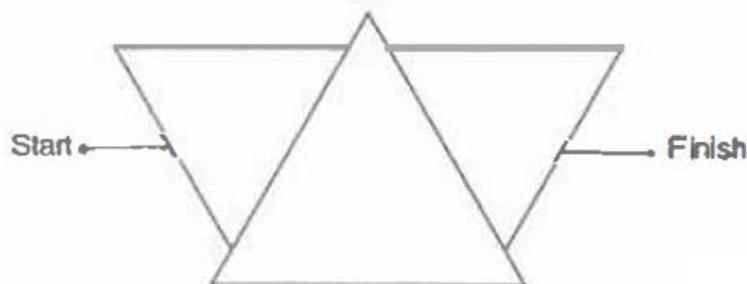

90°
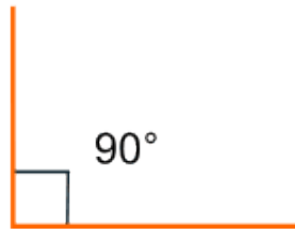
Note the special symbol in the angle. If we see this box, it is a right angle. The 90° is rarely written in.

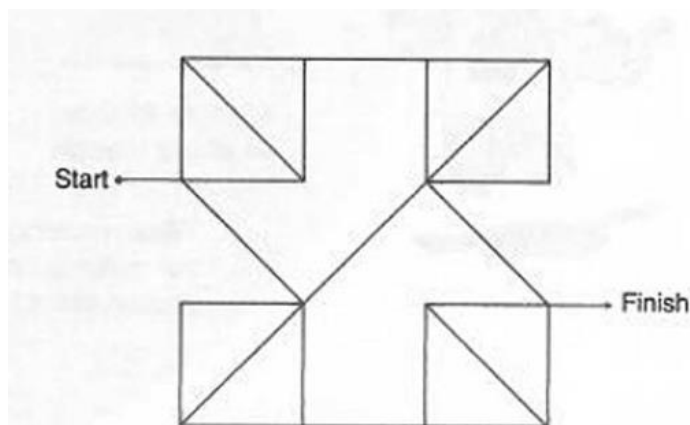All the angles below are right angles. Use your right angle template to check it.

8.

Complete each angle maze below by tracing a path from start to finish that has only acute angles.

Start →   Finish
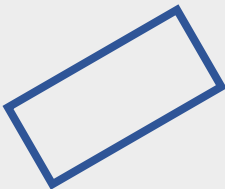
9. Be careful to avoid right angles in the next maze

10.

Look at each figure. Place an X in the box if it appears to describe the figure pictured.

	□	▱	◇	△
4 vertices				
Four sides				
Opposite sides parallel				
Perpendicular sides				
Opposite sides have equal length				
All sides have equal length				
Contains right angle(s)				
Contains acute angle(s)				
Contains obtuse angle(s)				

REVIEW II

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

11. The table shows products of the numbers 0 through 10. Let's find patterns there.

factors

×	0	1	2	3	4	5	6	7	8	9	10
0	0	0	0	0	0	0	0	0	0	0	0
1	0	1	2	3	4	5	6	7	8	9	10
2	0	2	4	6	8	10	12	14	16	18	20
3	0	3	6	9	12	15	18	21	24	27	30
4	0	4	8	12	16	20	24	28	32	36	40
5	0	5	10	15	20	25	30	35	40	45	50
6	0	6	12	18	24	30	36	42	48	54	60
7	0	7	14	21	28	35	42	49	56	63	70
8	0	8	16	24	32	40	48	56	64	72	80
9	0	9	18	27	36	45	54	63	72	81	90
10	0	10	20	30	40	50	60	70	80	90	100

(factors → rows; factors → columns)

a) _____

b)_____

c)_____

12.

Challenge yourself

a) One penny out of three is fake. It is lighter than the others. How can you identify the fake coin by using a balance scale like the one shown in the picture? You can only weigh once!

b) How can you find one fake penny out of 9 pennies if you can only weigh twice?

Did you know …

In mathematics, a **multiplication table** (sometimes, less formally, a **times table**) is a table used to define results of multiplication operations.

The decimal multiplication table was traditionally taught as an essential part of elementary arithmetic around the world, as it lays the foundation for arithmetic operations with base-ten numbers.

Many educators believe it is necessary to memorize the table up to 9×9.
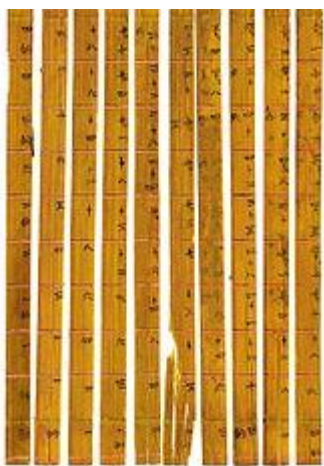
The oldest known multiplication tables were used by the Babylonians about 4000 years ago. However, they used a base of 60. The oldest known tables using a base of 10 are the Chinese decimal multiplication table on bamboo strips dating to about 305 BC, during China's Warring States period.

The multiplication table is sometimes attributed to the ancient Greek mathematician Pythagoras (570-495 BC). It is also called the Table of Pythagoras in many languages (for example French, Italian and at one point even Russian), sometimes in English.