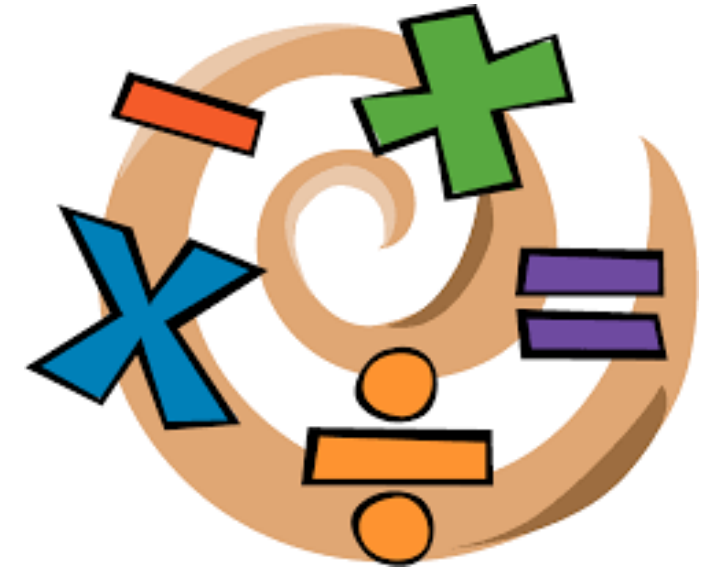# Week 4
Angles and Lines

Message to Parents:

The following slides are organised into three different levels of challenge (Bronze, Silver and Gold). If no level is provided it should be appropriate for everyone to access.

Please ensure your child chooses the appropriate level. It is okay for the children to change their level through out the week depending on the task.

These tasks can be done over the whole week and can be carried out at the child's own pace.

Feel free to provide additional questions for your child to complete.

Recap from last week
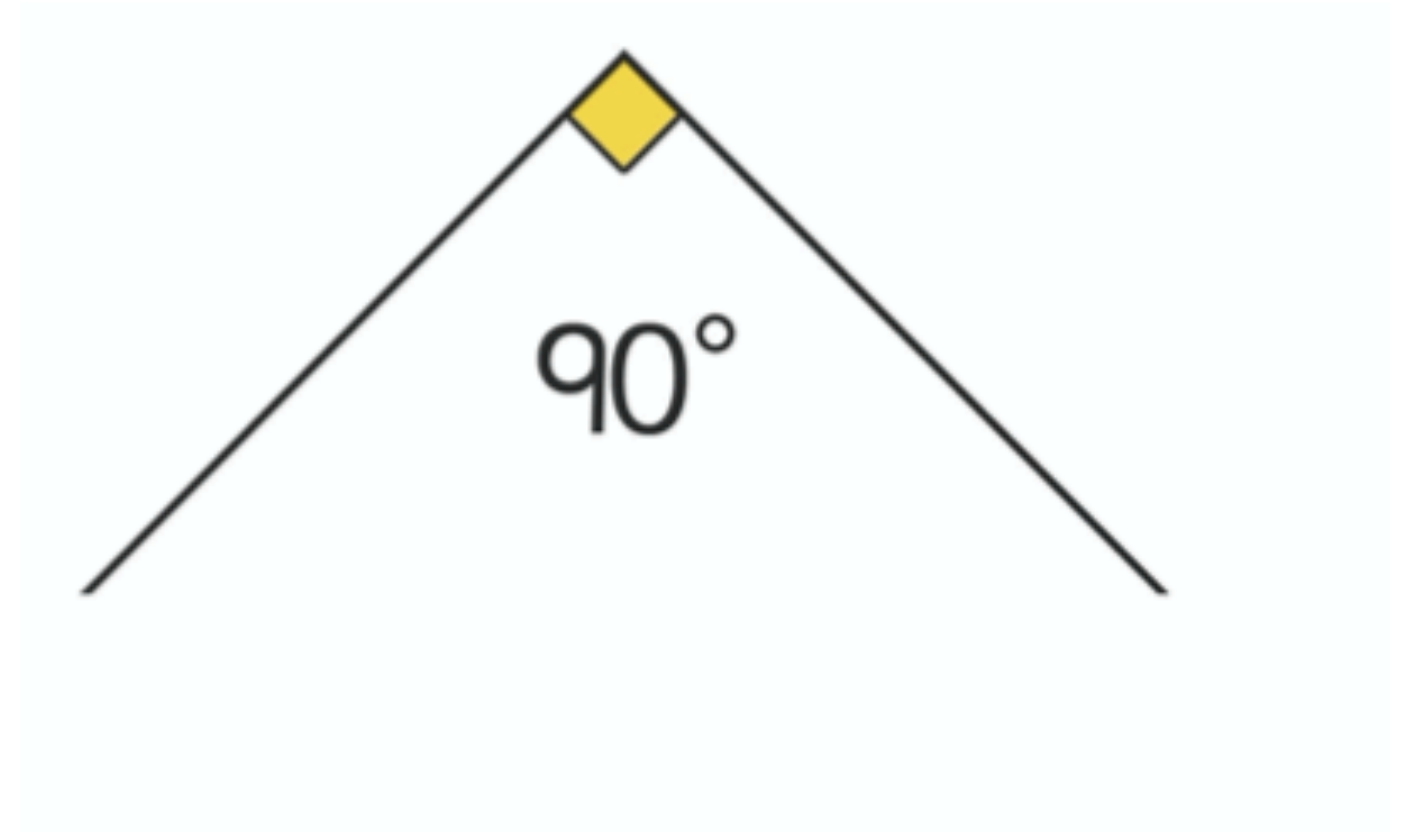
Name these shapes:
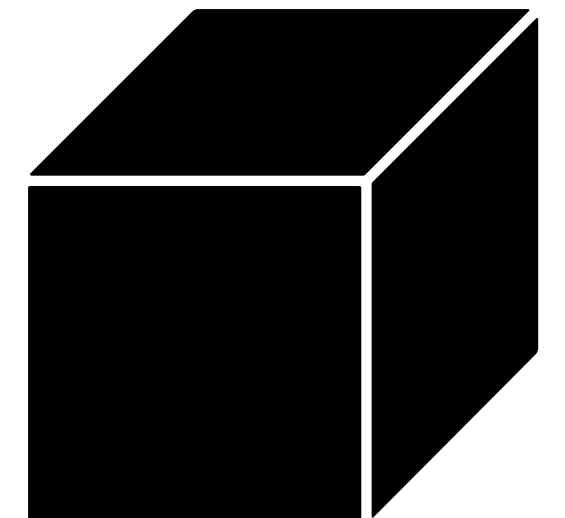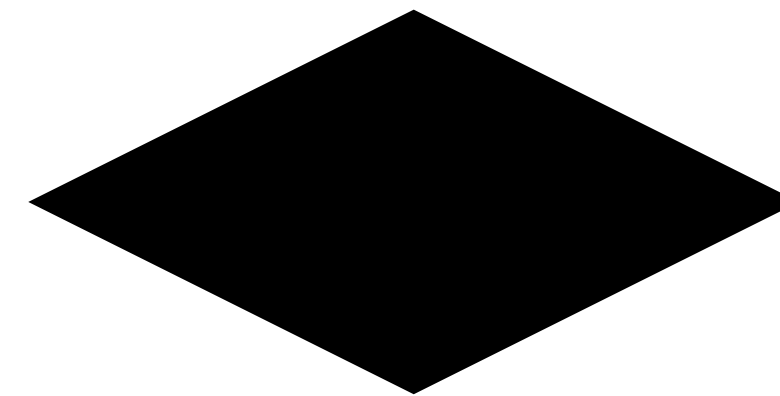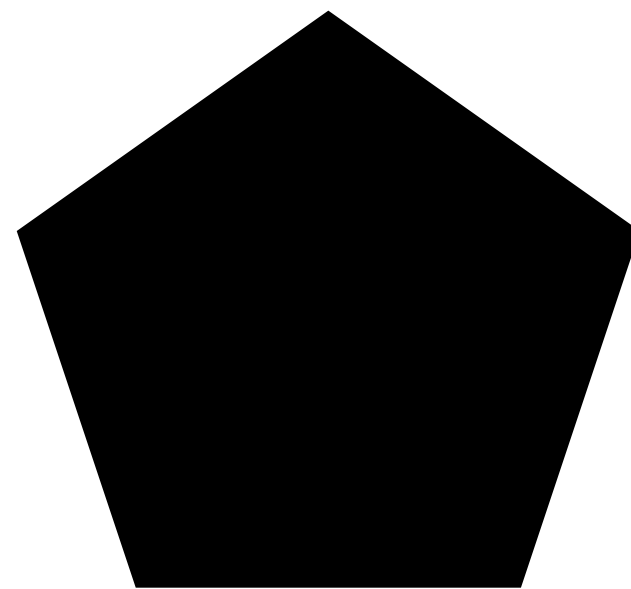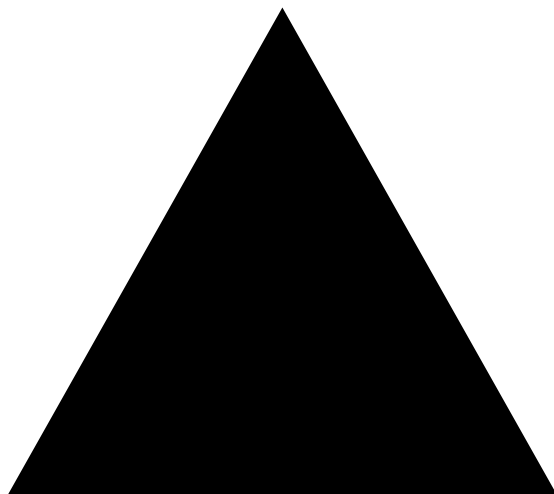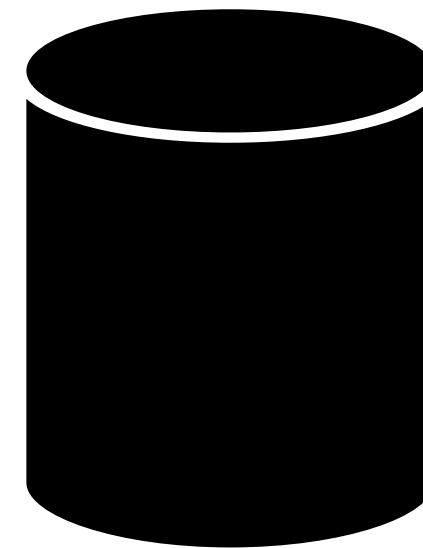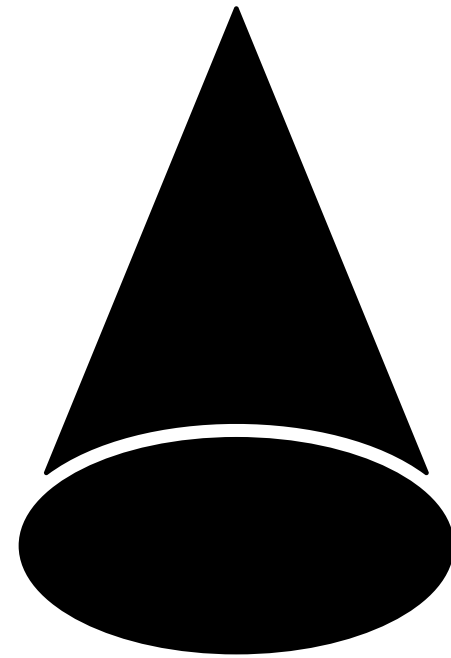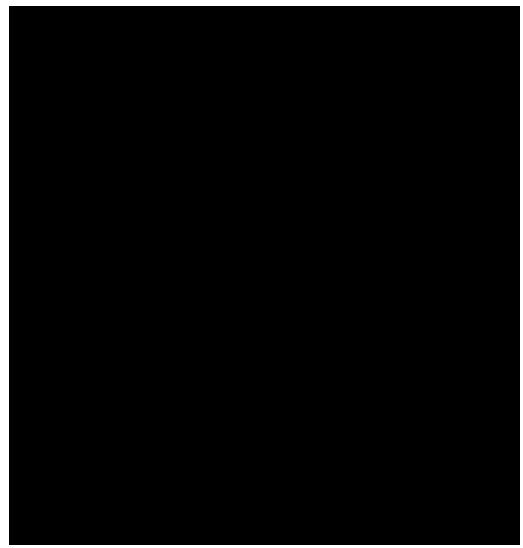
Different types of angles

Have a listen to this song to help you remember the different types of angle...
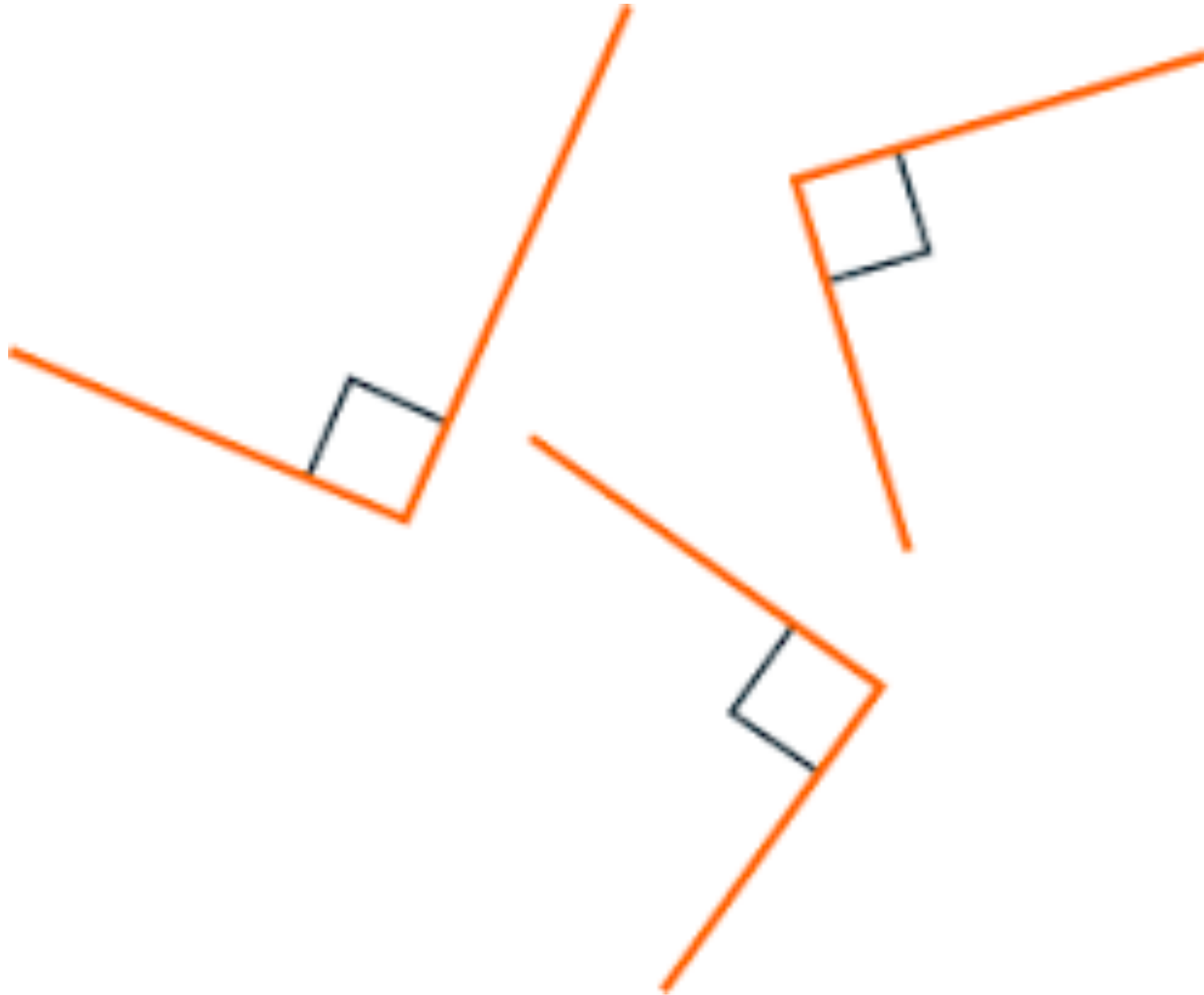
https://www.youtube.com/watch?v=yZylaRqsoBU

Right angles

- Right angles measure at 90 degrees

90°
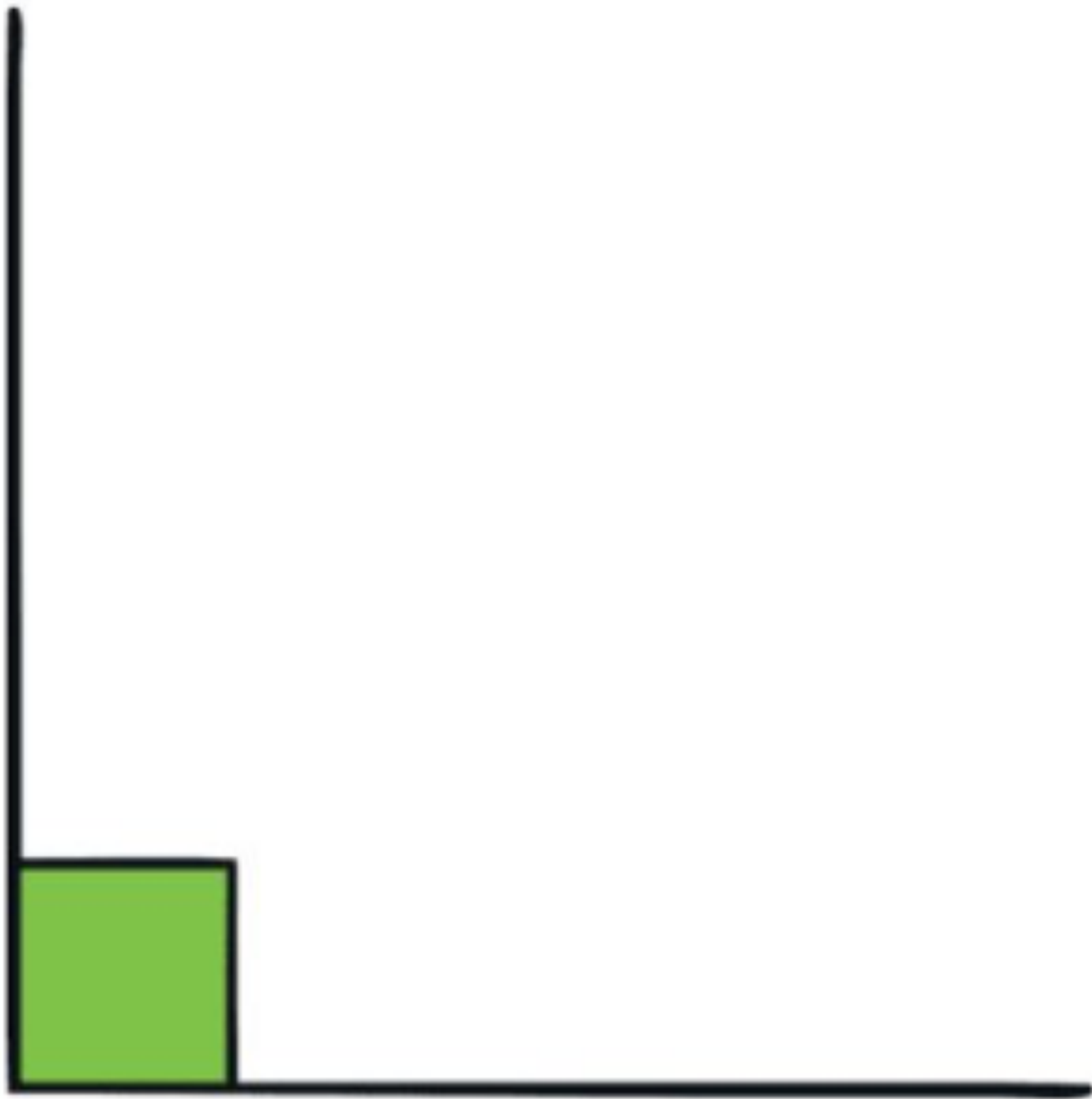
- Right angles can be any way :

- They are usually marked with a square

How to Measure a Right Angle

If right angles are not marked on a Maths problem or worksheet, your students may need to measure them by hand.

This must be done with either a 180 or 360 protractor. This is a Mathematical instrument used to measure angles, normally made from transparent plastic or glass. Some even have moving parts to make the measuring process easier.

Protractor skills are valuable in the study of Maths. To measure a right angle, students must line up the axis of the protractor with the apex of the two connecting lines of an angle.

- If the measurement equals 90° then this is a right angle.

- If the angle exceeds 90° it is an obtuse angle.

- If the angle is less than 90° it is an acute angle.

- If the angle exceeds 180° then it is a reflex angle.

- If the angle is exactly equal to 180° then it is a straight angle or half-turn.
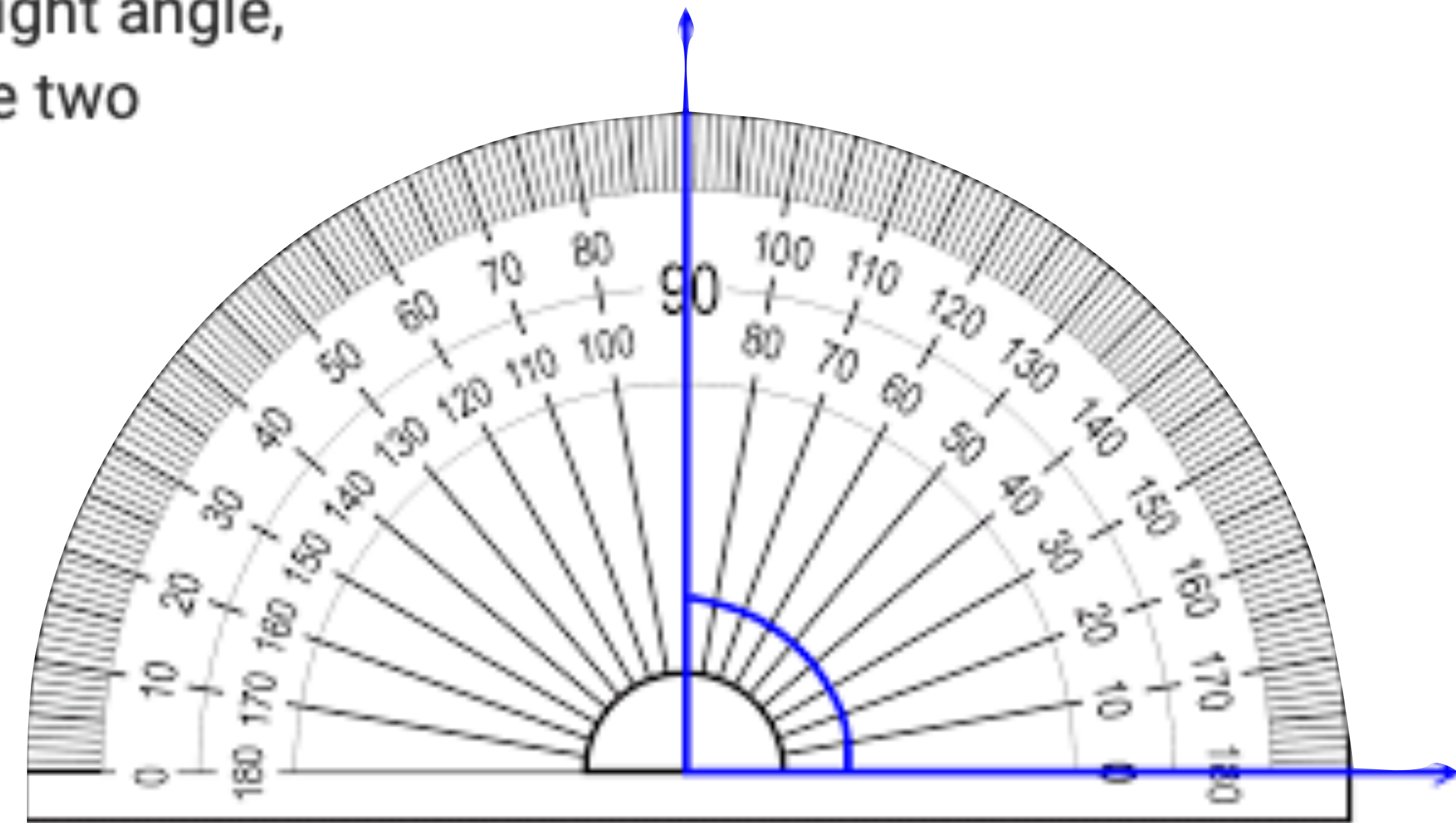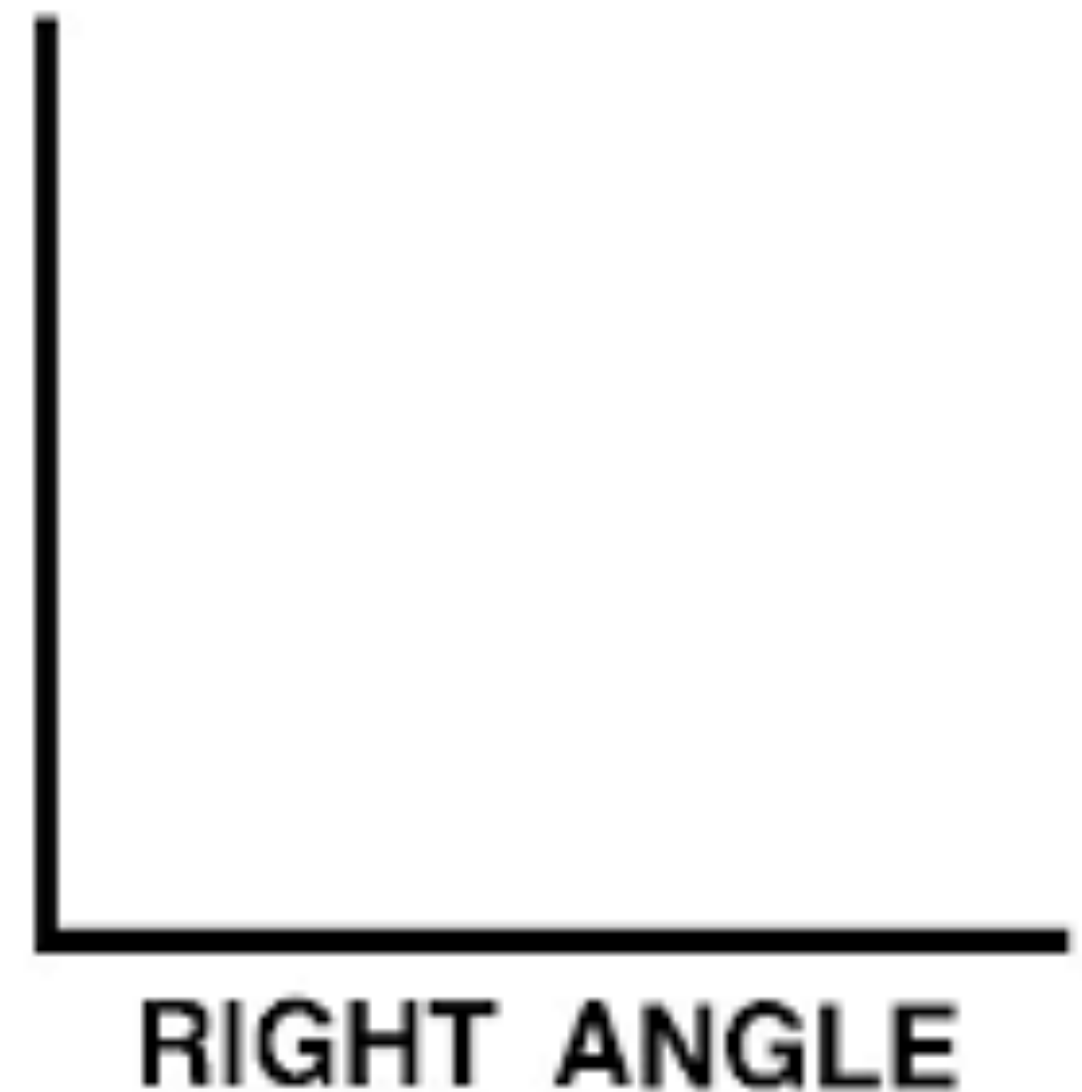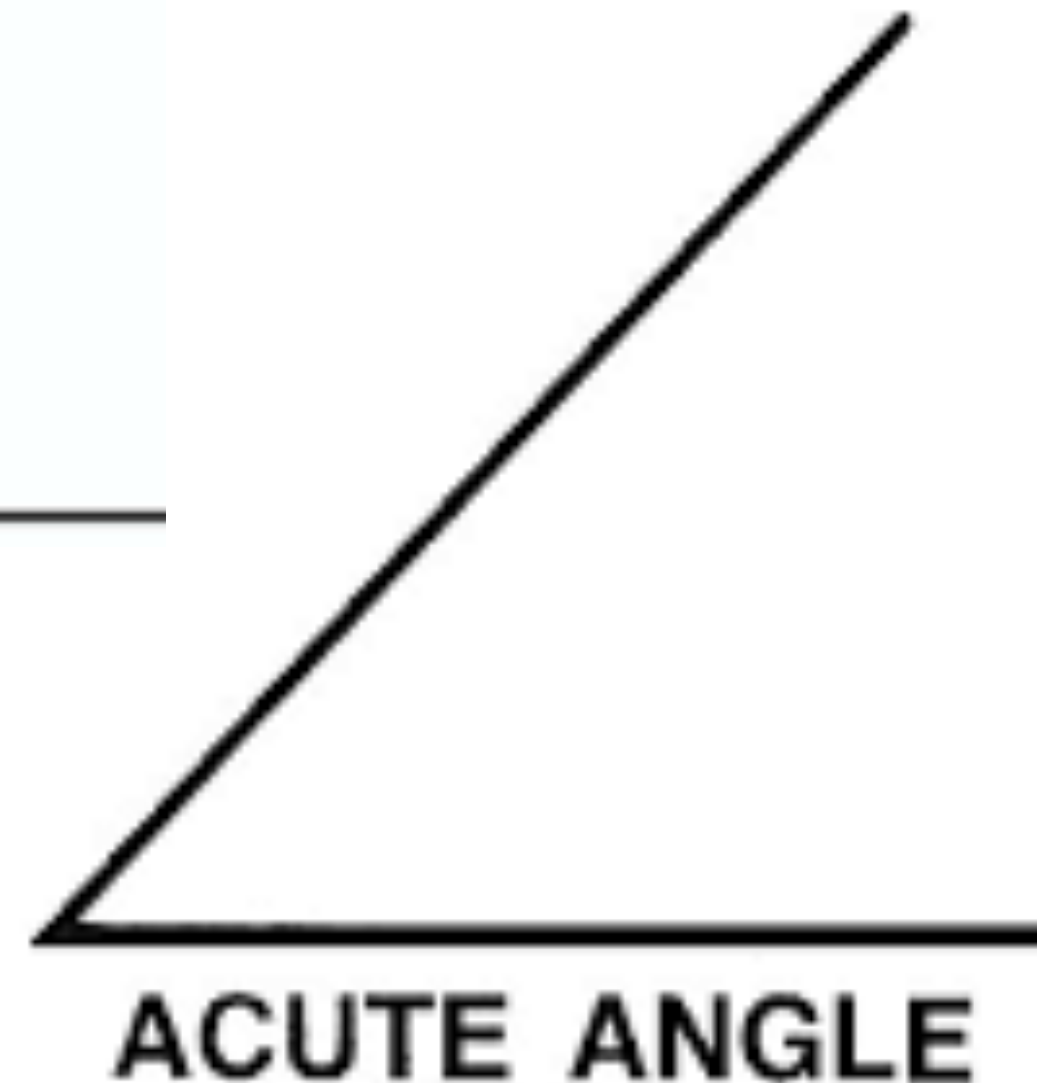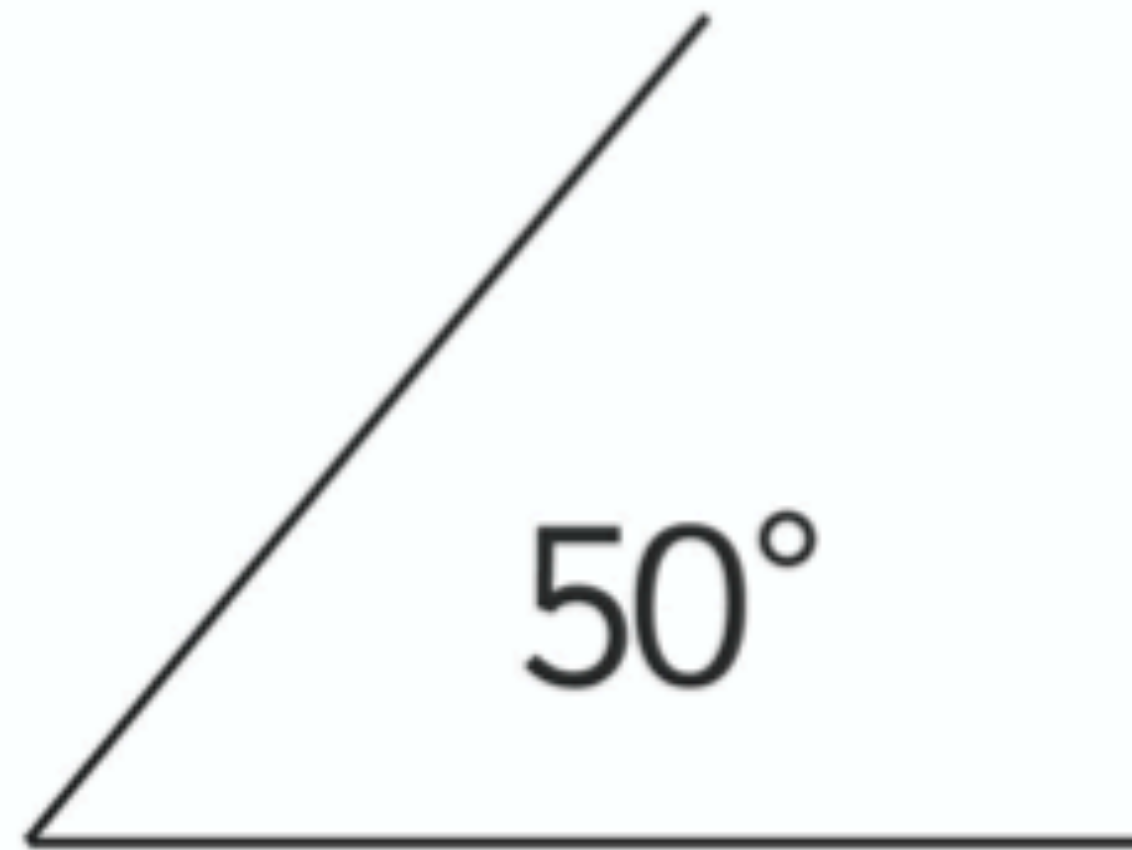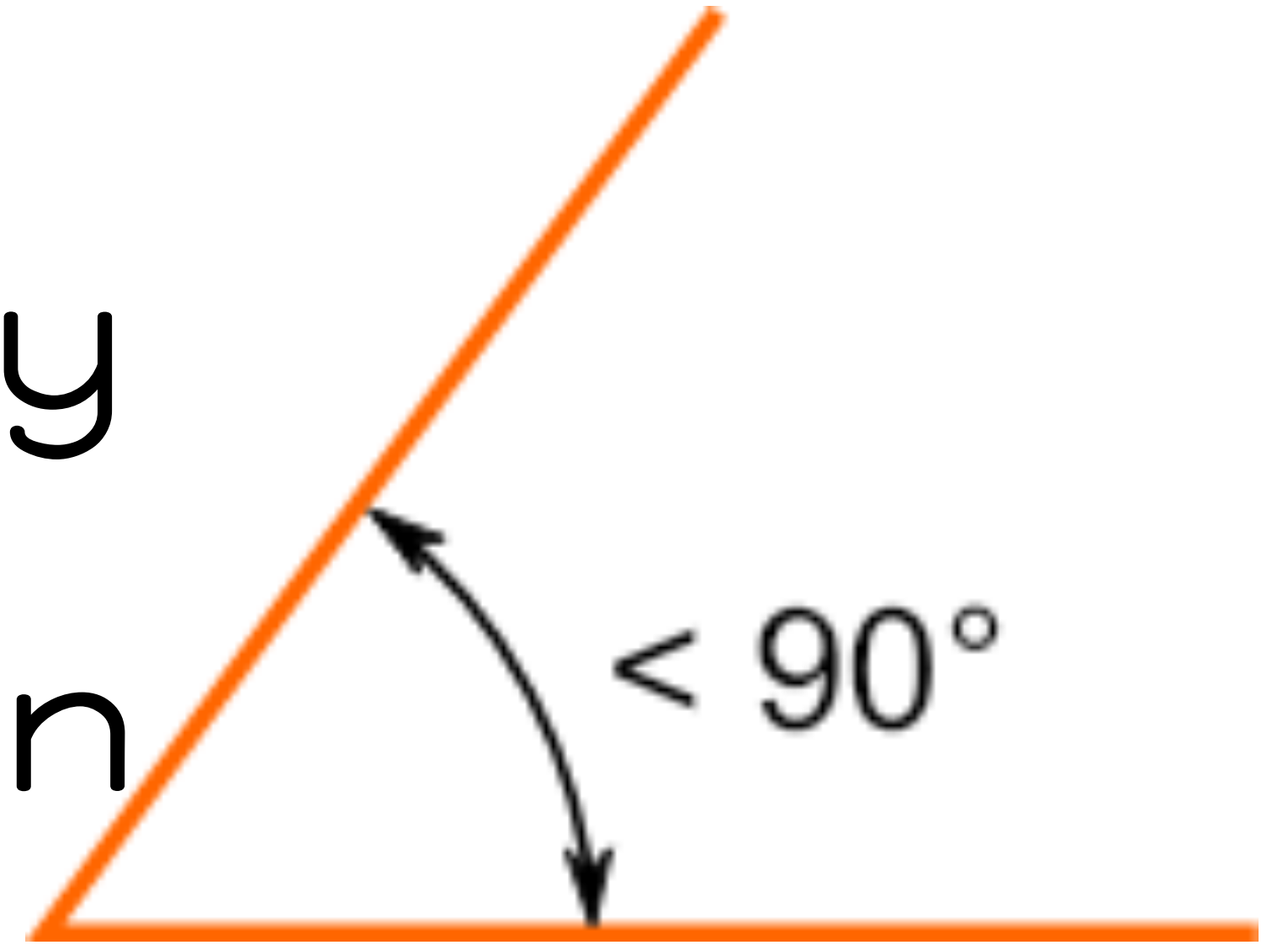
Right angles

Can you find any right angles inside these shapes? Draw a square to show where you find a right angle. One has been done for you.
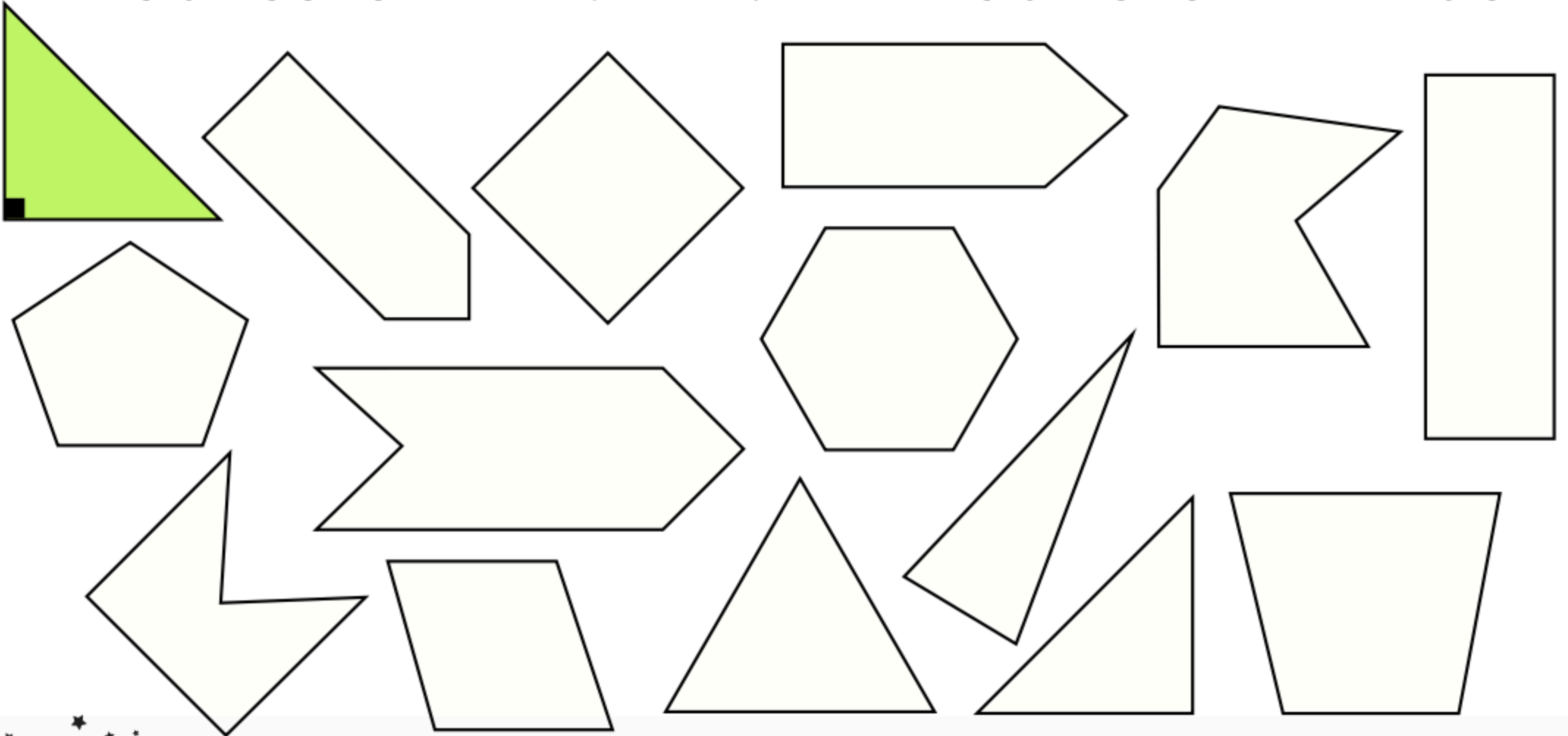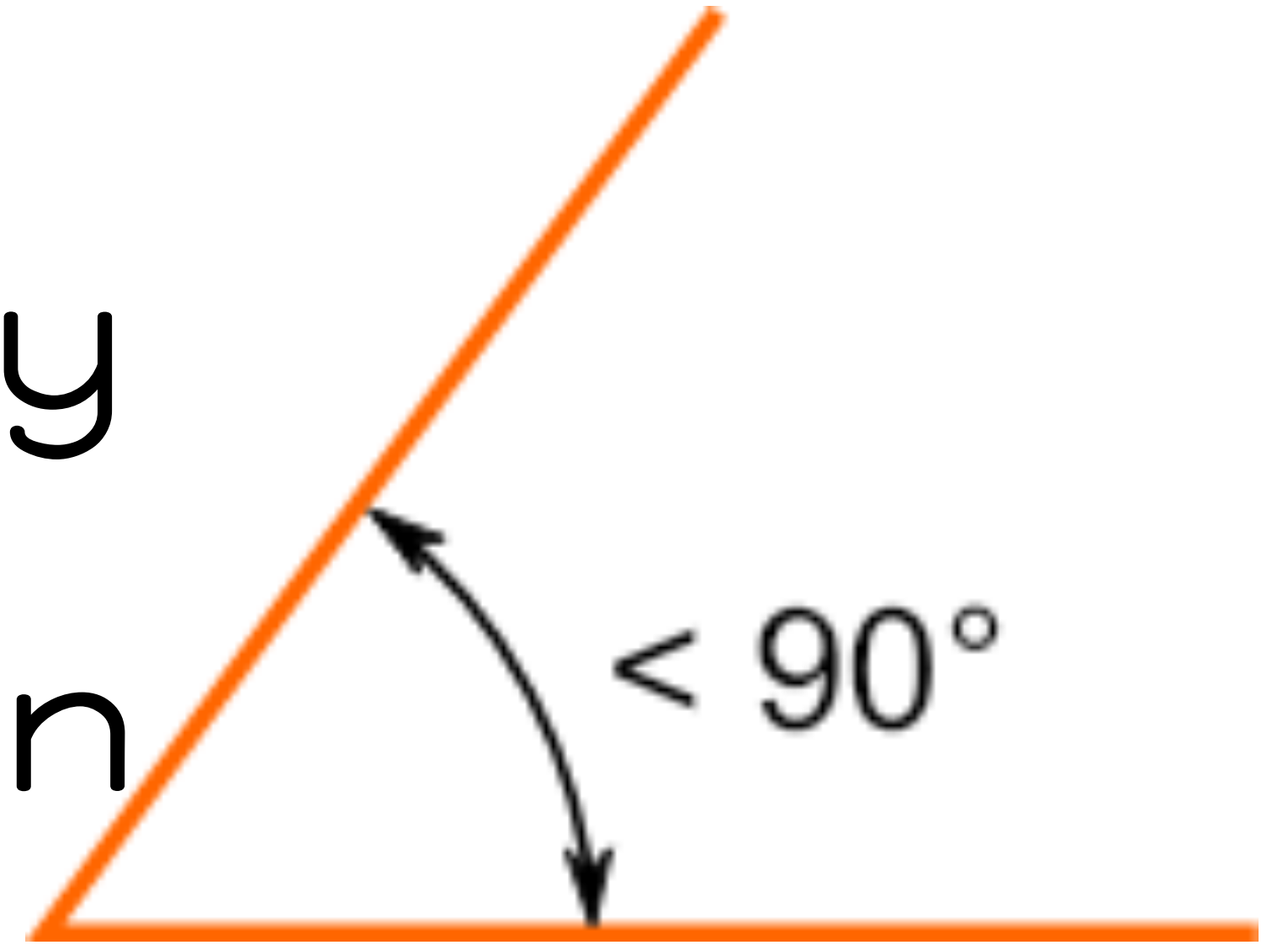
Acute angles:

- Acute angles can be any way
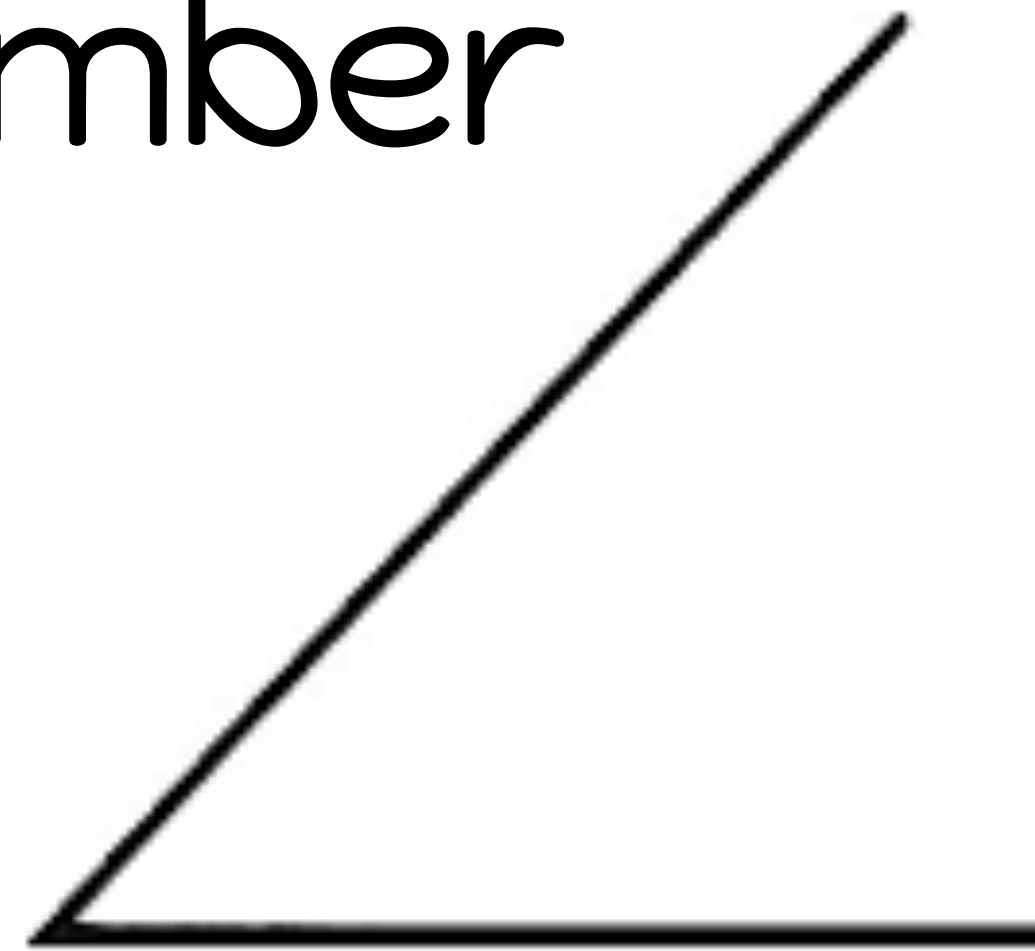
- Acute angles are smaller than a right angle.

< 90°

50°

20°

ACUTE ANGLE

RIGHT ANGLE

Acute angles:

- Acute angles can be any way

- Acute angles are smaller than a right angle.

< 90°

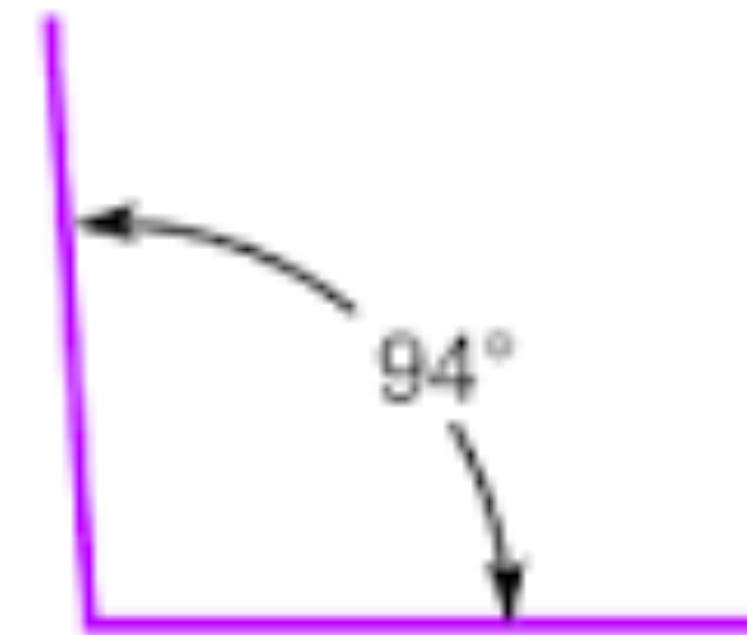- A good way to remember acute angle is:

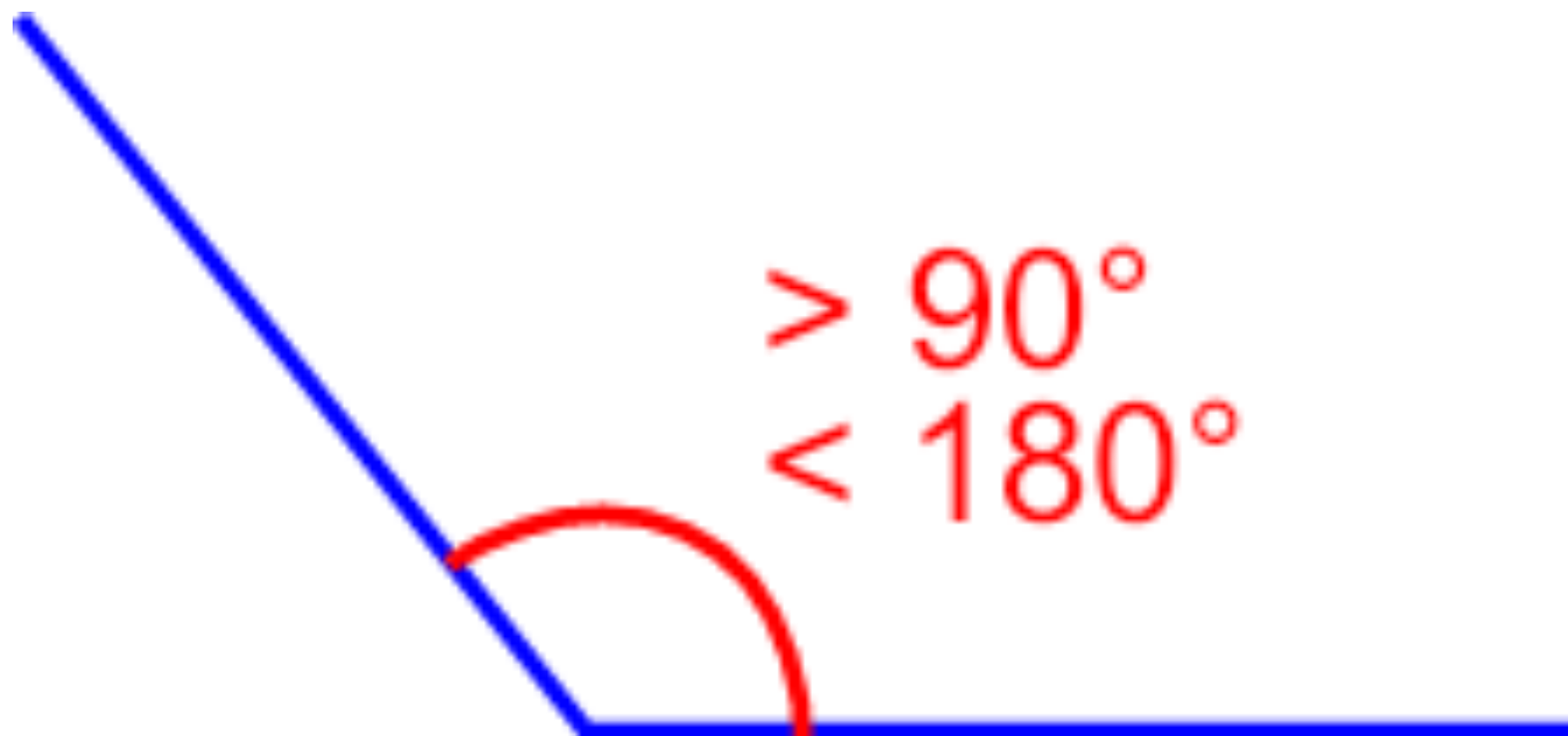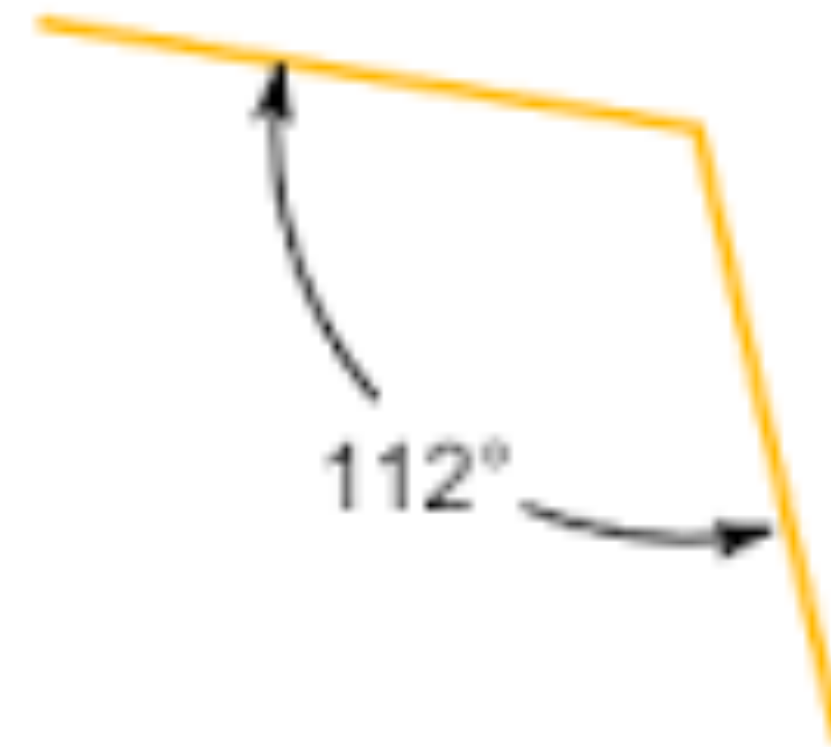Acute angle is <u>small</u> and <u>CUTE</u>

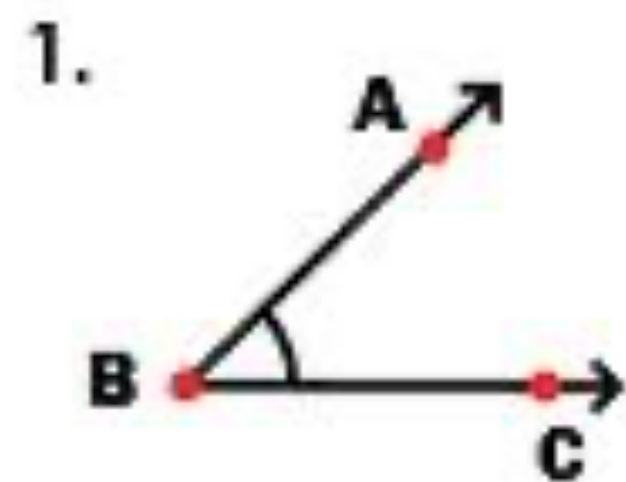ACUTE ANGLE

RIGHT ANGLE

Obtuse angles:
- Obtuse angles can be any way
- Obtuse angles are larger than a right angle.
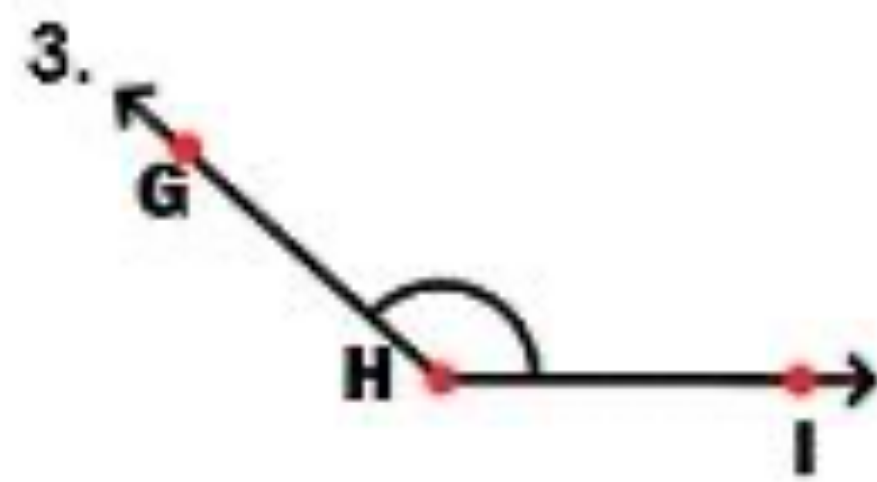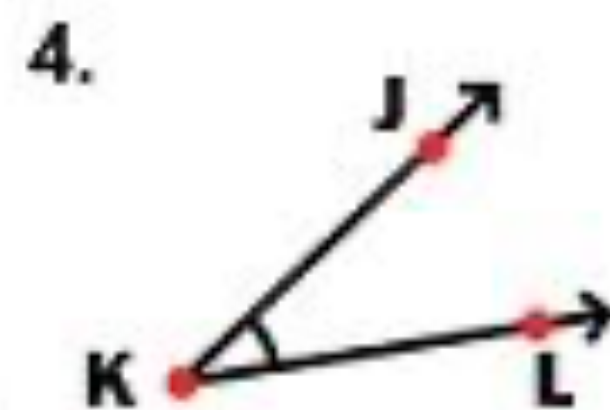
116°

112°

> 90°
< 180°

105°

94°

168°

Acute and Obtuse angles

Label each angle as acute, obtuse, or right.

1.

2.

3.

4.

_____   _____   _____   _____

5.

6.

7.

8.

_____   _____   _____   _____
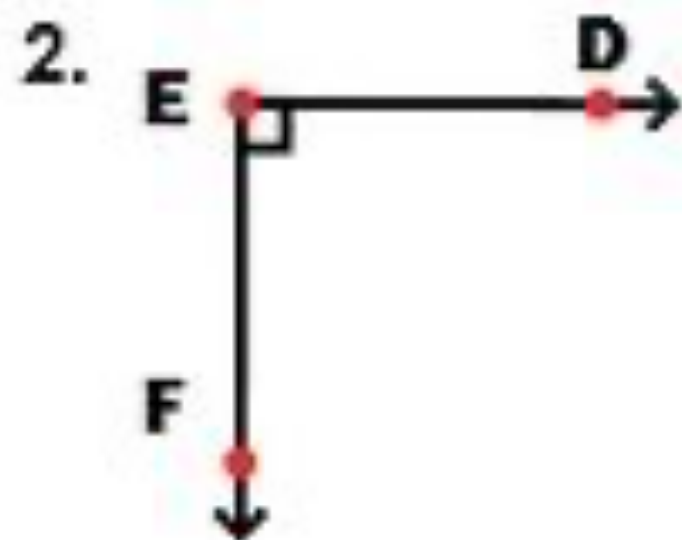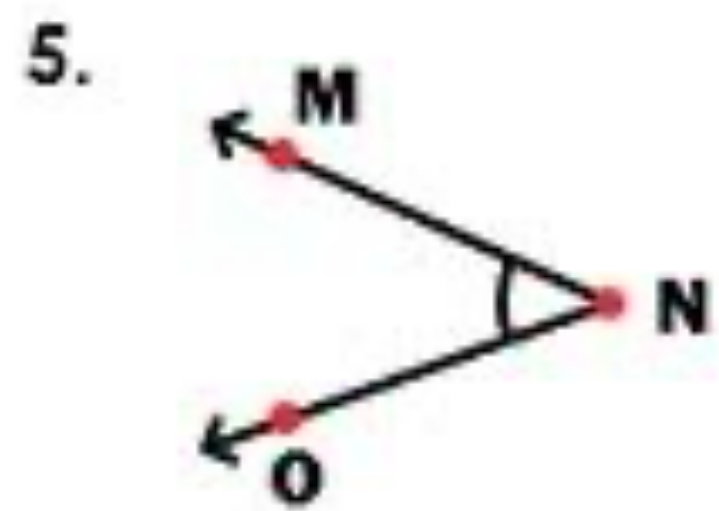
Look at each angle.

Is it...

Acute?

Obtuse?

Right?

Stick-person Angles

Label all the different angles you can see on this person (right angle, acute angle and obtuse).

Create your own stick person in different positions and label the angles.

90°

270°
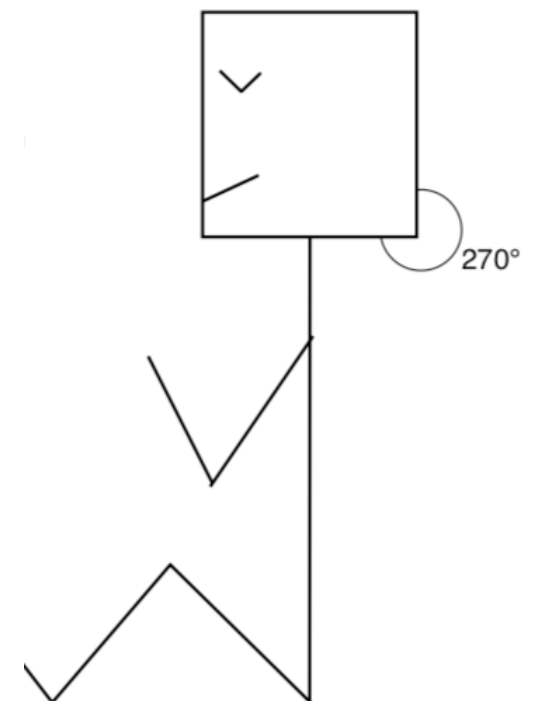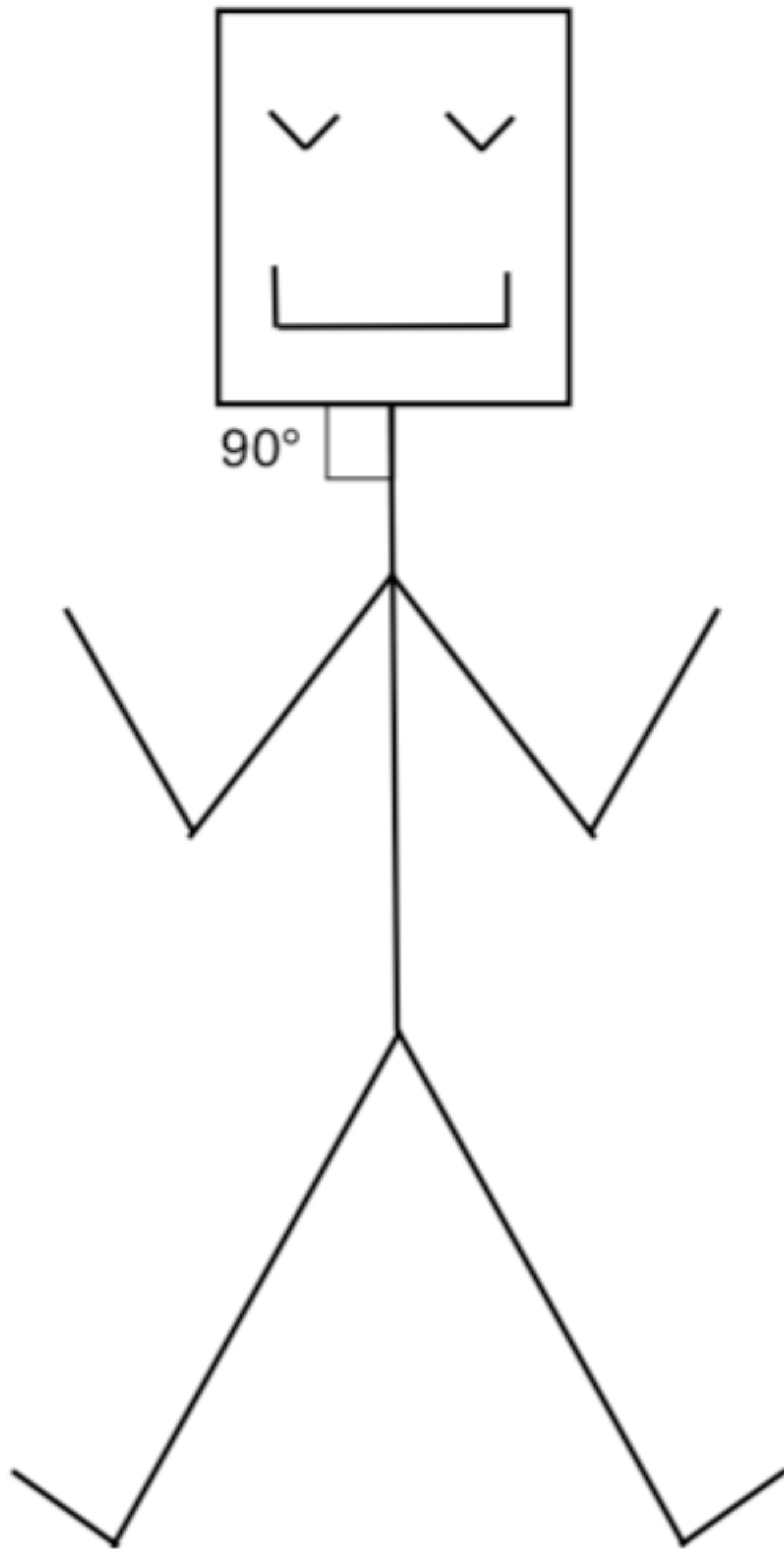
Turns and Angles
Deeper Learning

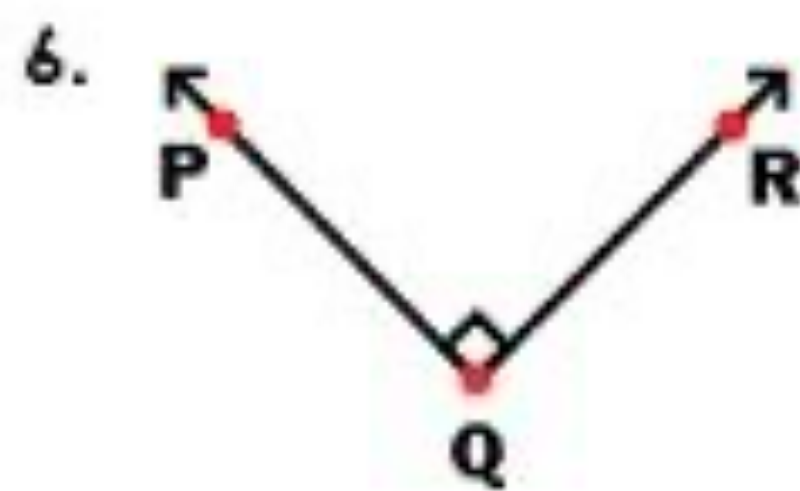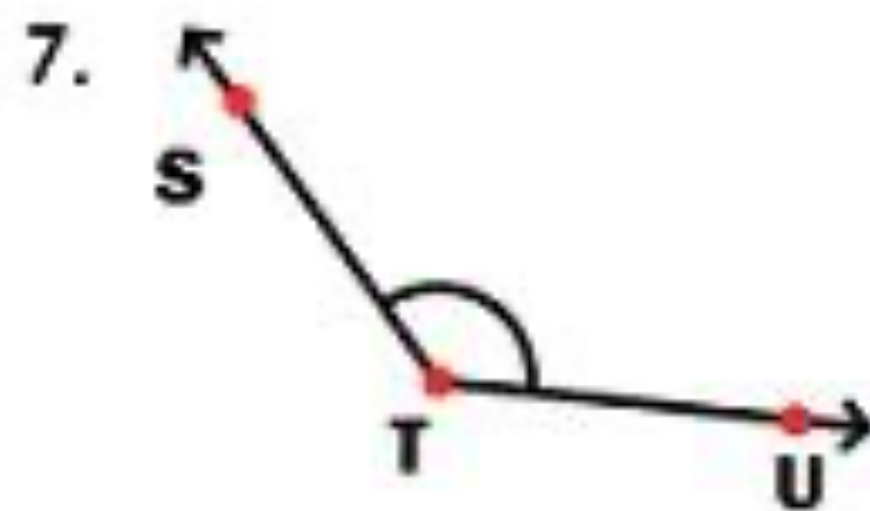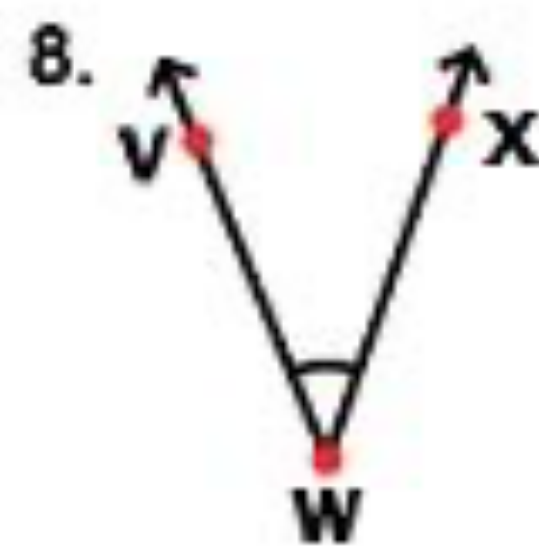1. Look at the hands of the clock.
Turn the minute hand one quarter of a turn clockwise.
Where is the large hand pointing?
What is the new time?

What turn has the minute hand made?

2. When two straight lines meet at a point, they make an _____.

Tick the images where you can see an angle.

3. A   B   C   D

Turns and Angles Deeper Learning

4. The arrow on a spinner started in this position.
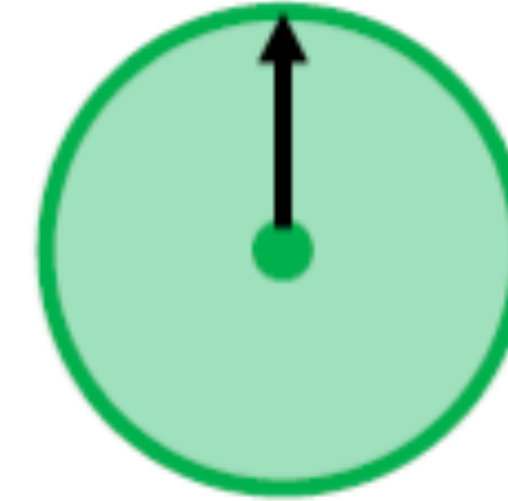
After making a turn it ended in this position.
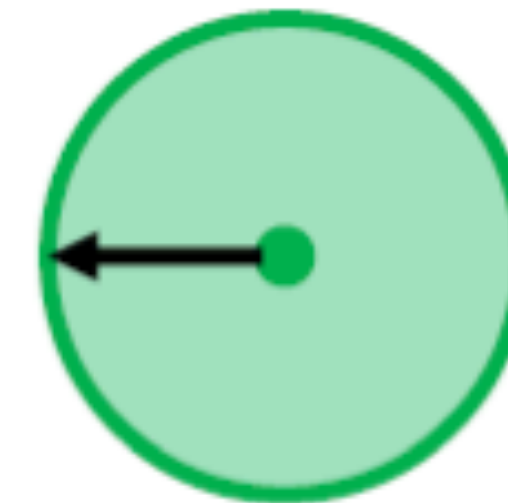
James says,

The arrow has moved a quarter turn anti-clockwise.

Milly says,

The arrow has moved a three-quarter turn clockwise.

Who do you agree with?

Turns and Angles Deeper Learning

5.
The letter 'X' has four angles.

Write your name in capital letters.
How many angles can you see in each letter?
How many angles are there in your full name?

Comparing Angles
Deeper Learning

1.

The angle between the hands is _____ than a right angle.
This is called an _____ angle.
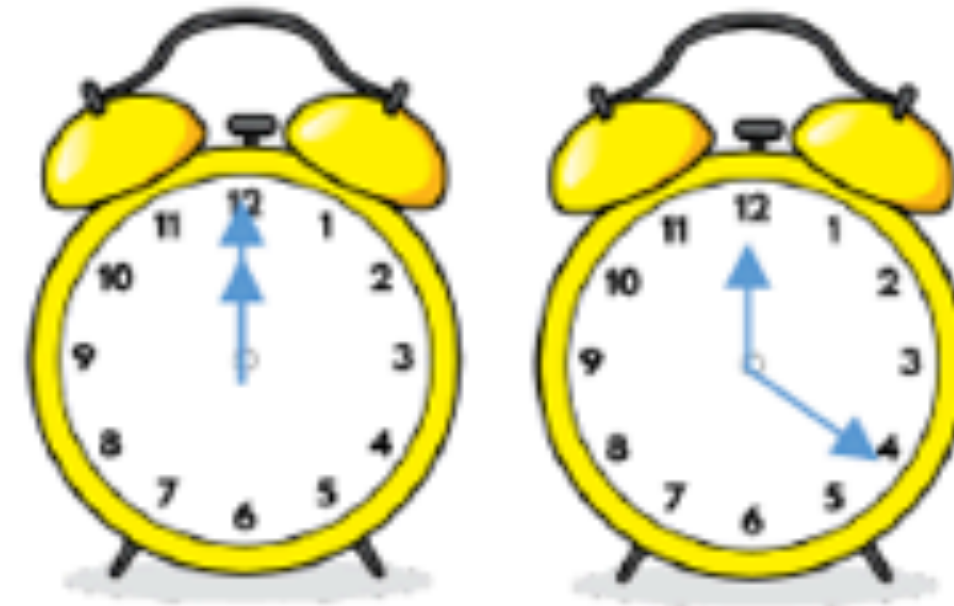
The angle between the hands is _____ than a right angle.
This is called an _____ angle.

Explore other times where the hands make an acute/obtuse angle.
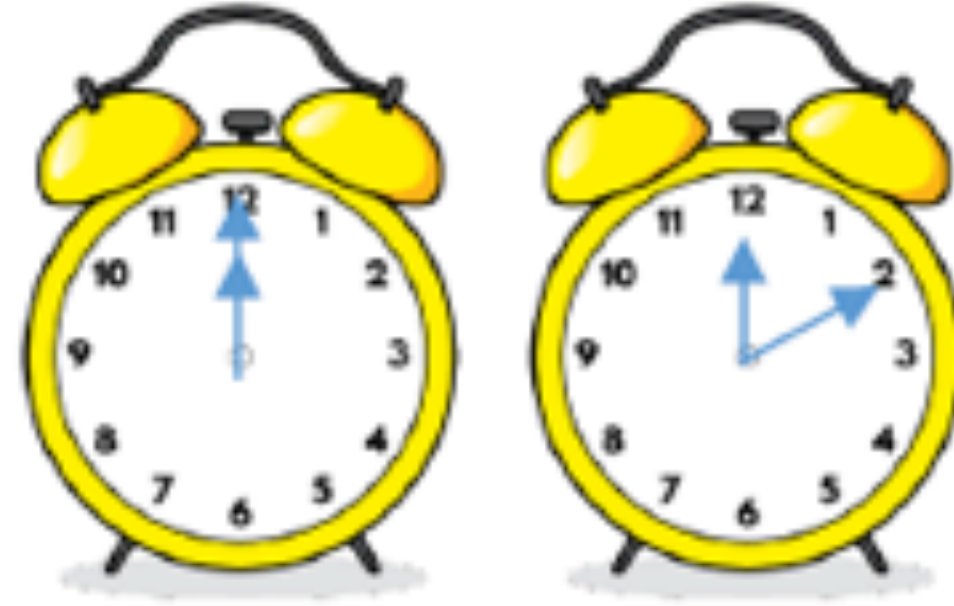
2.

Label the angles in these images.

Comparing Angles

Deeper Learning

3. The letter A has 3 acute angles and 2 obtuse angles. Label the angles.

A

Investigate how many different angles you can spot in the word ANGLE. Record your findings in a table.

Does your name contain more or less acute angles than the word ANGLE?

Comparing Angles

Deeper Learning

4.

Jack describes a shape.

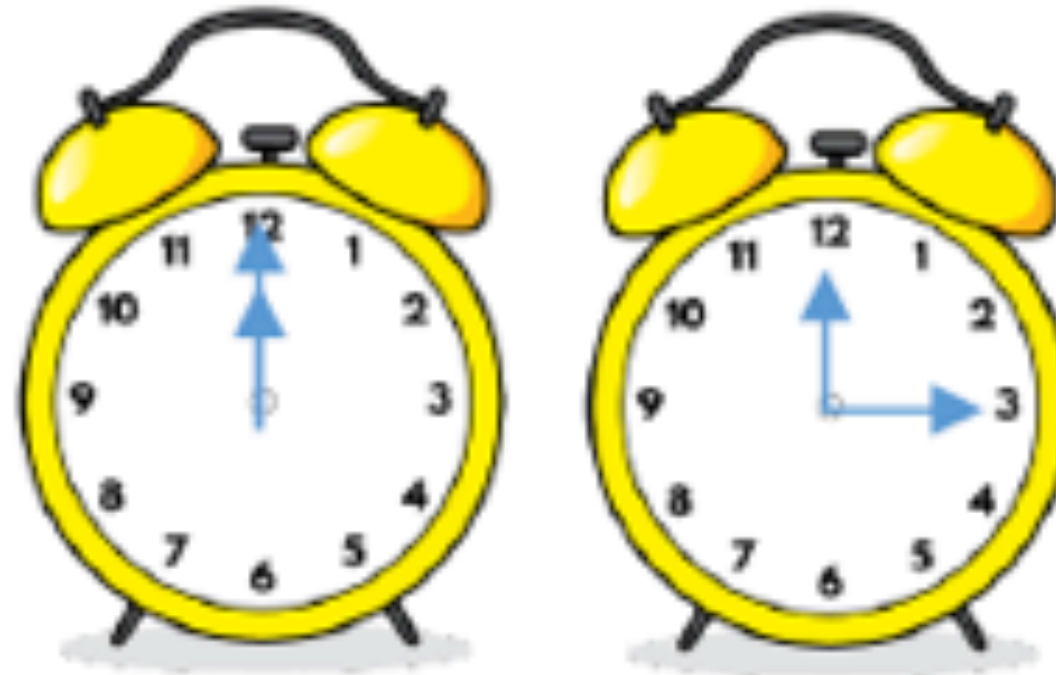My shape has 3 right angles and 2 obtuse angles.

What could Jack's shape look like?

Describe a shape in terms of it's angles for a friend to draw.

Right angles in shapes
Deeper Learning

1. Start with the hands showing 12 o'clock, move the minute hand one quarter of a turn.

The angle between the hands is called a _____ angle.
One quarter turn is equal to a _____ angle.

2. Sort the shapes based on the number of right-angles they have. Record your answer in a table.

Right angles in shapes

Deeper Learning

3. The letter 'E' has four right-angles.

How many other capital letters have four right-angles?

4. **True or False?**

This shape has two right-angles.

Explain your answer.

Right angles in shapes

Deeper Learning

5.

How many right-angles can you see in this image?
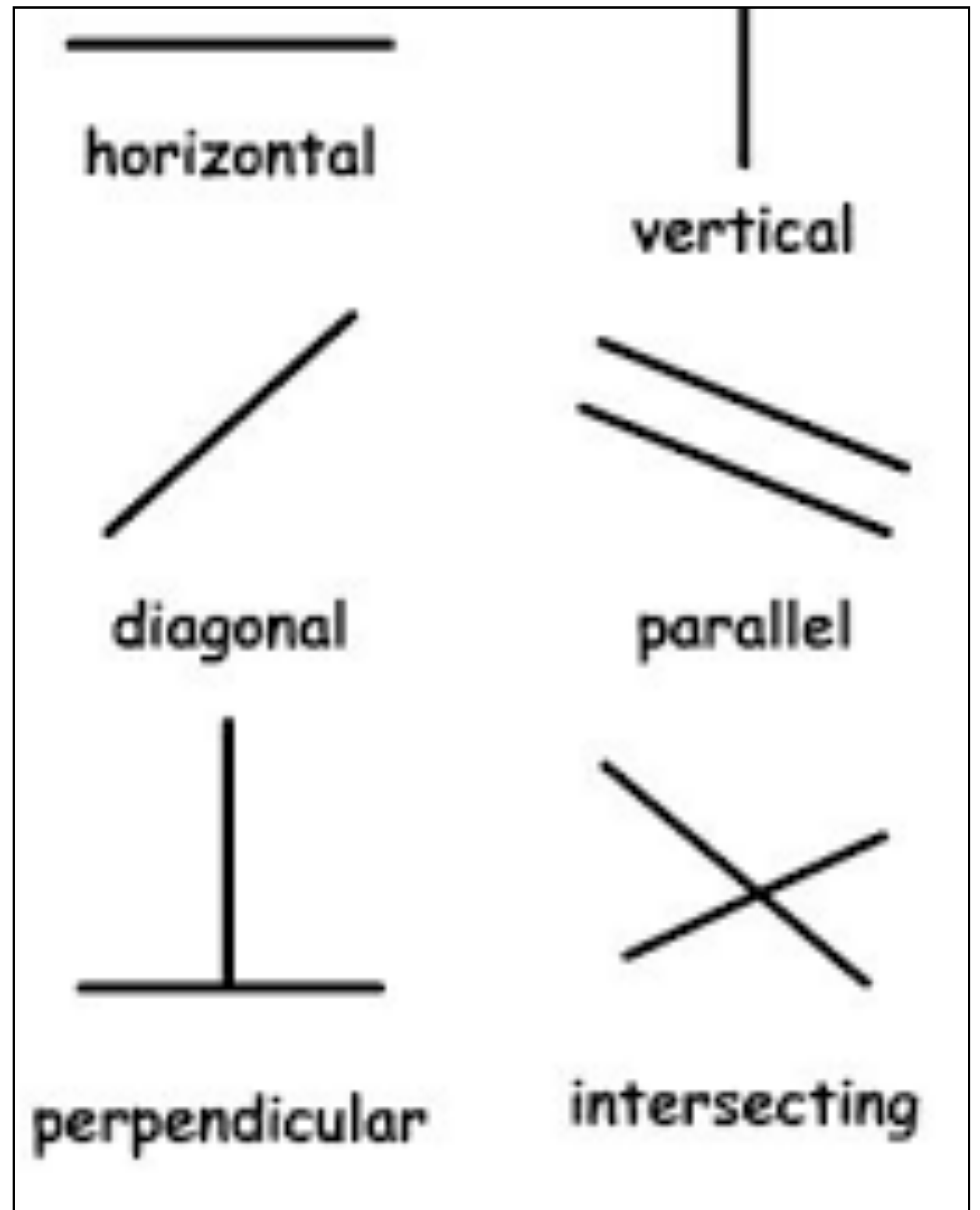
Different types of lines

Have a listen to this song to help you remember the different types of line...

https://www.youtube.com/watch?v=P3AOoLbA3us

Types of lines

When we look at lines, there are names for different types.

Can you have a go at drawing some of your own?

horizontal

vertical

diagonal

parallel

perpendicular

intersecting
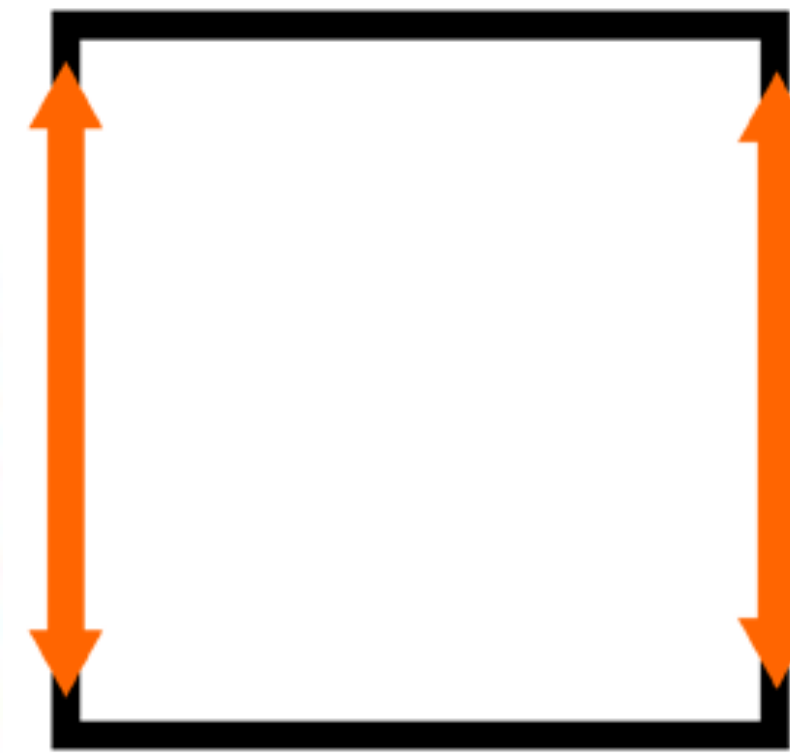
Horizontal and Vertical lines

HORIZONTAL

Across like the horizon!
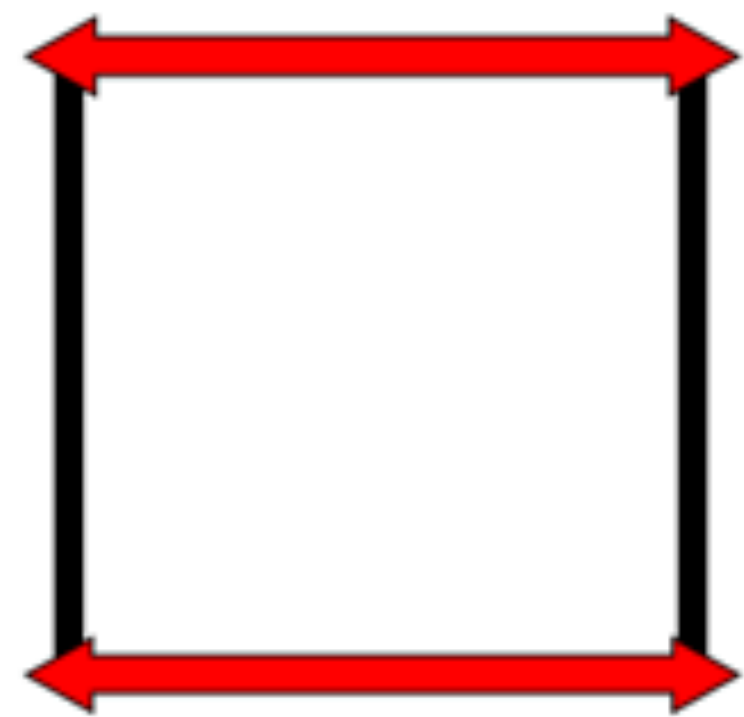
Horizontal lines run from side to side or from left to right / right to left.

Vertical

Vertical lines run from top to bottom or upward and downward.
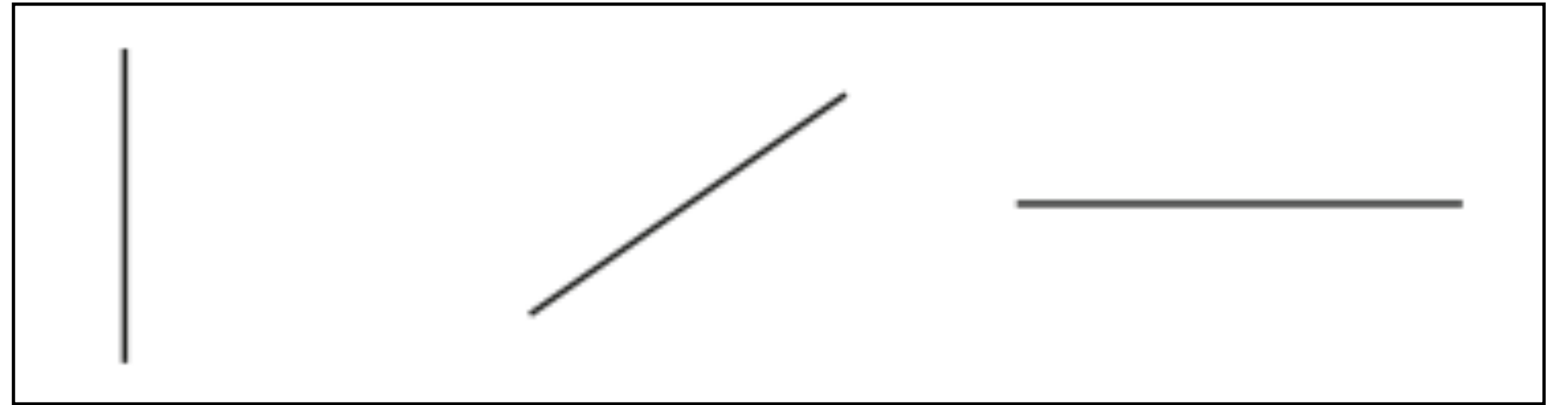
Tall like a tree!

Horizontal and Vertical Lines Song (Youtube)

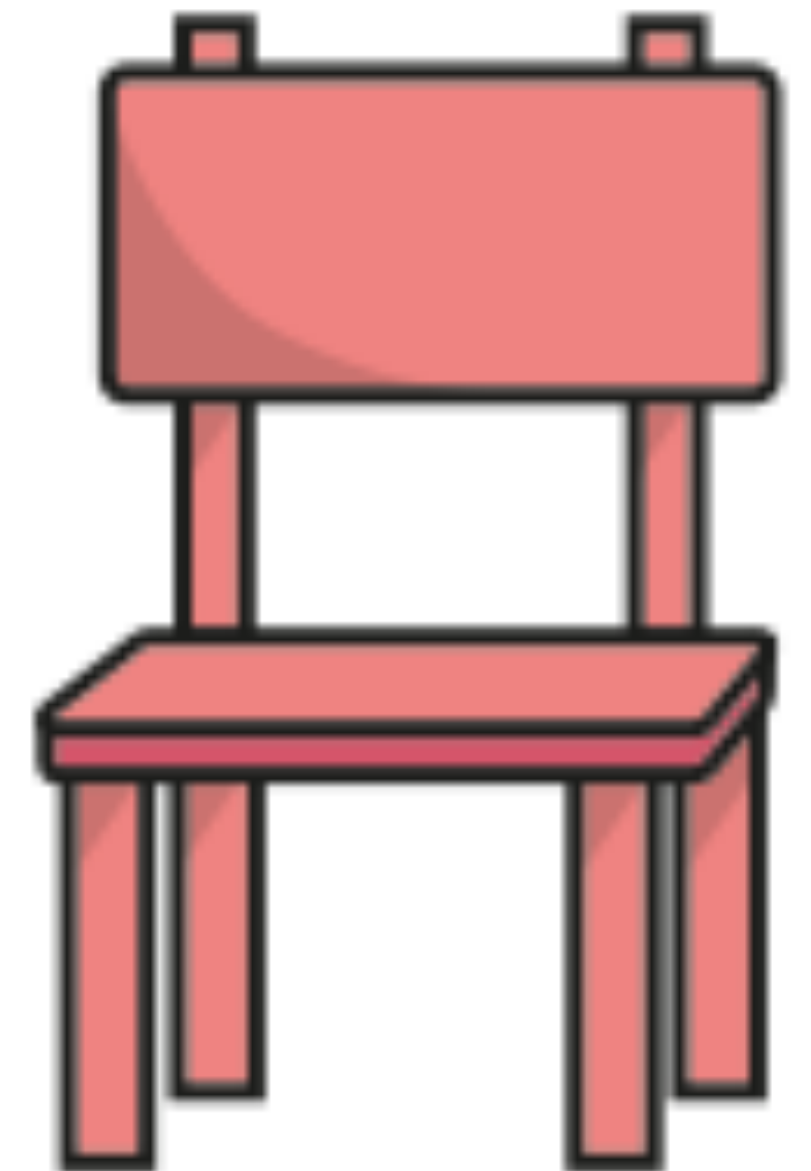Can you find horizontal and vertical lines around your home?
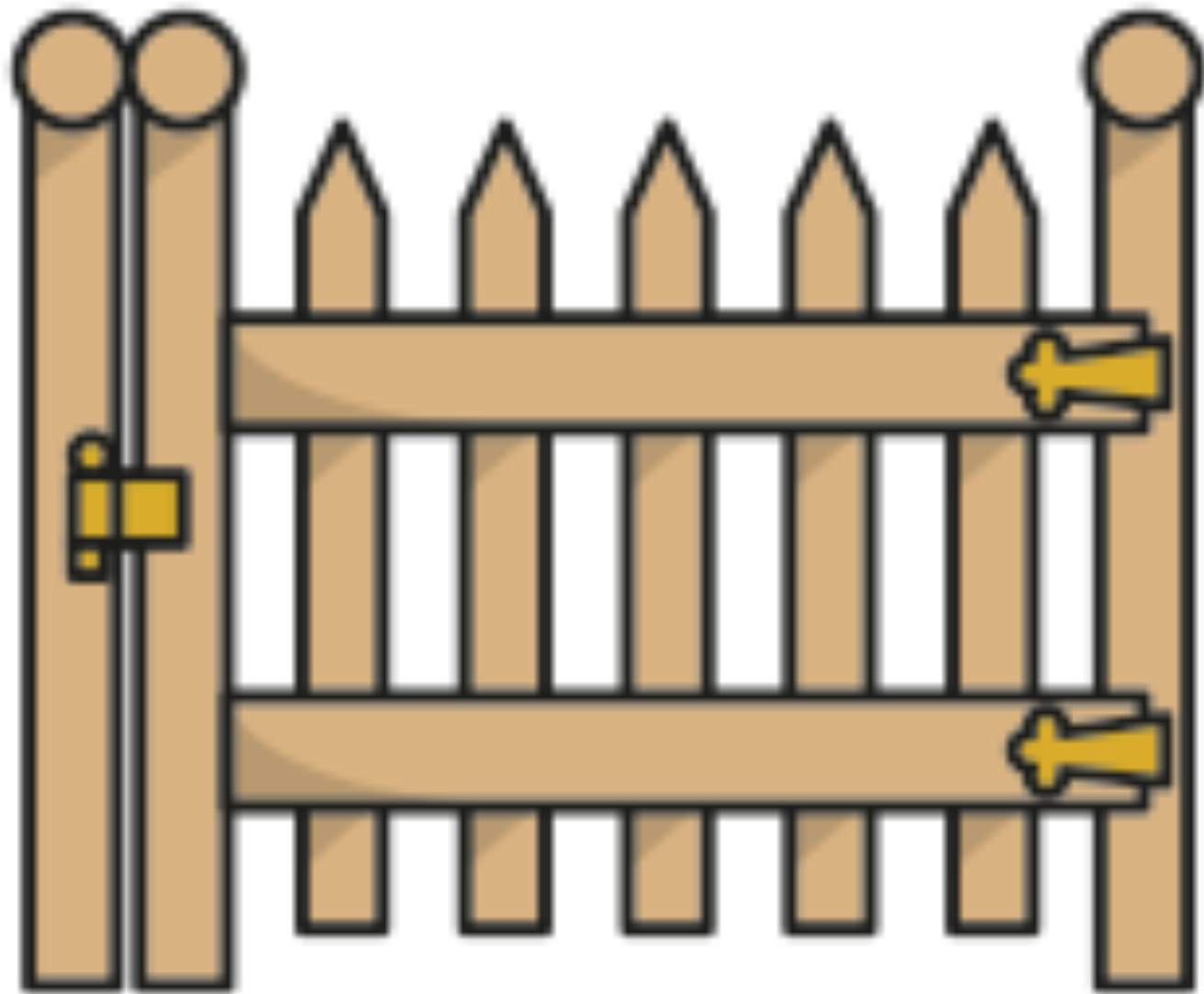
Horizontal and Vertical lines

Which line is horizontal?

Which line is vertical?

Can you find horizontal and vertical lines on these pictures?

Deeper Learning

Horizontal line of symmetry	Vertical line of symmetry	Both lines of symmetry

Jade sorts the shapes. | Can you spot and correct her mistake?

Deeper Learning

How many horizontal and vertical lines can you spot in this image by Mondrian?
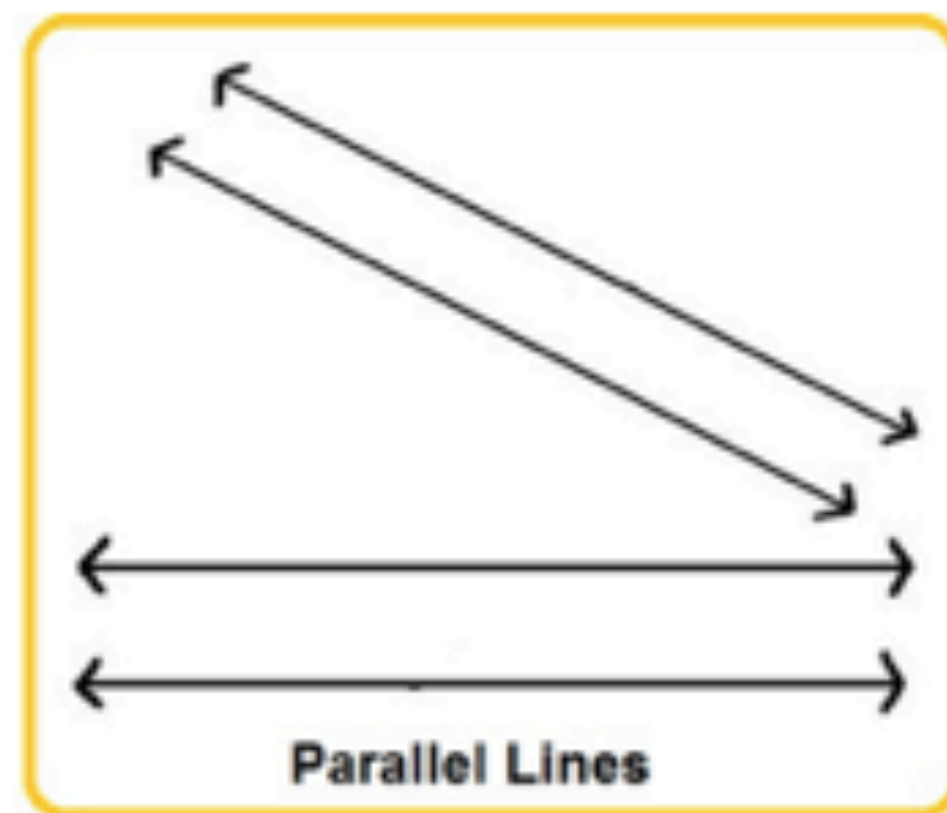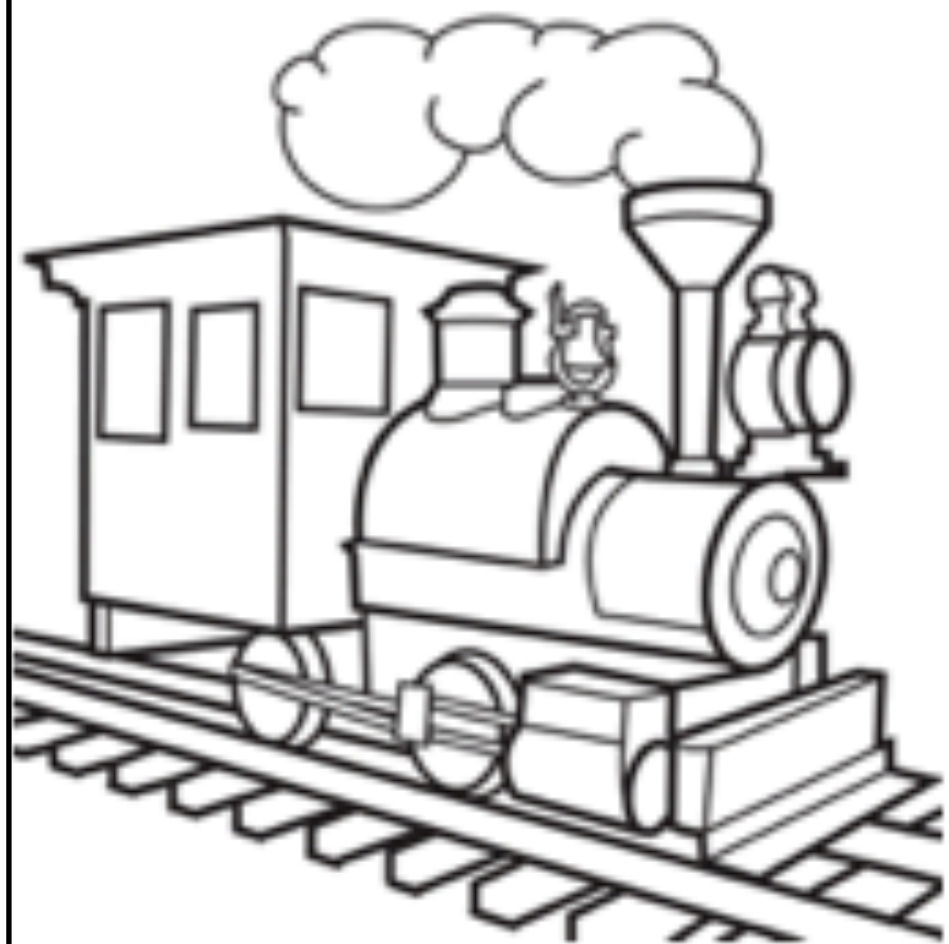
Create your own piece of art work using only horizontal and vertical lines.
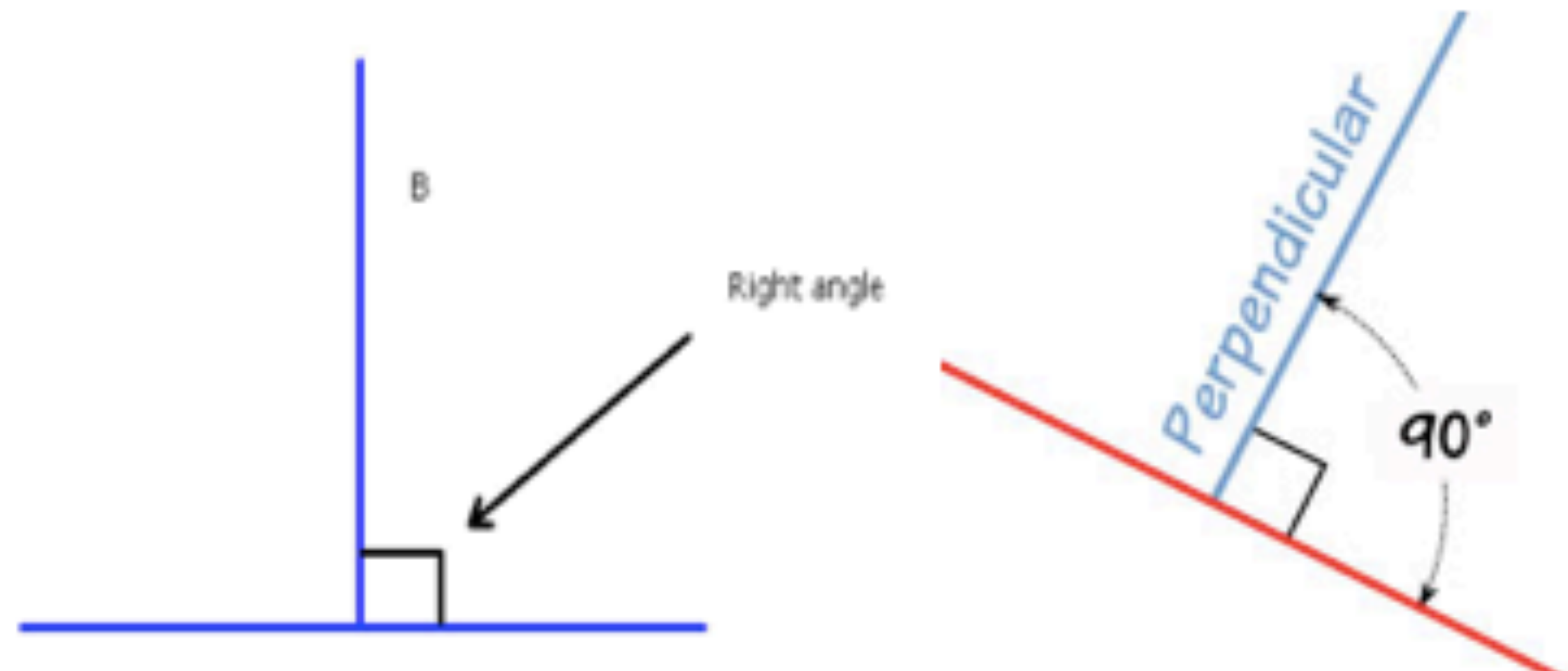
Parallel and Perpendicular lines

Parallel Lines!

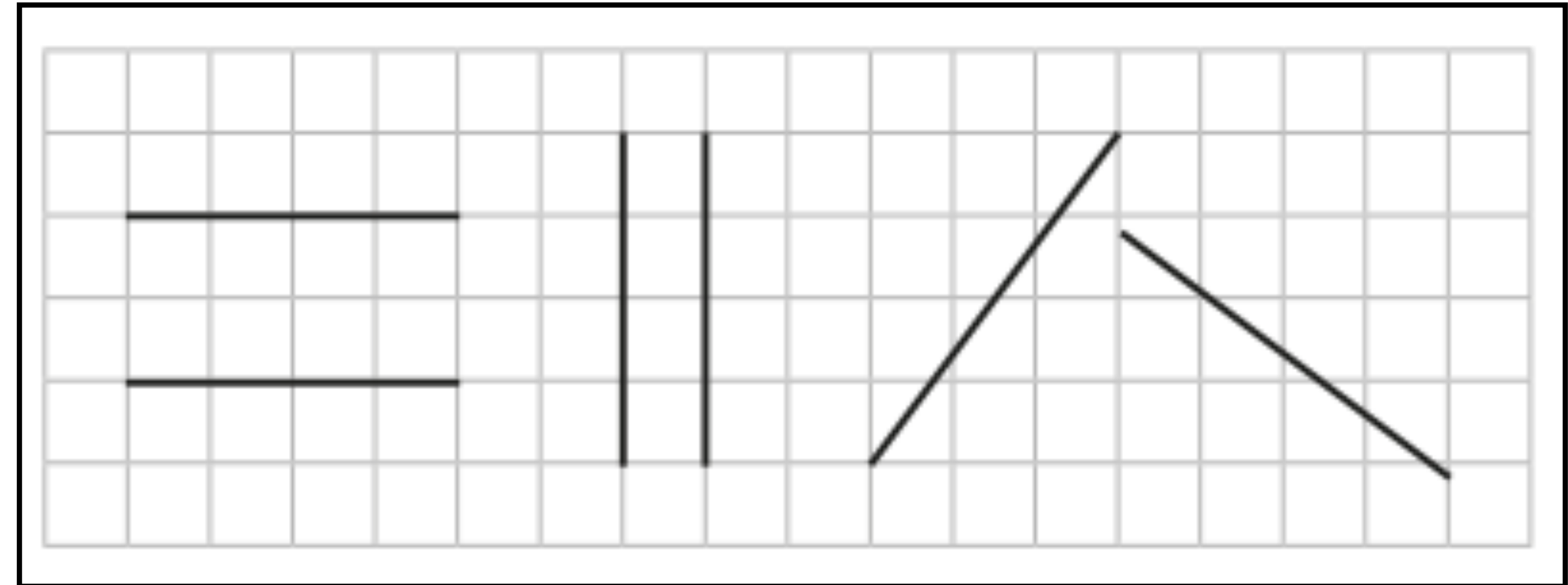Lines are parallel if they are always the same distance apart and will never meet:

Parallel Lines

Perpendicular Lines!

Perpendicular lines form a right angle:

B

Right angle

Perpendicular

90°

Can you find <u>parallel</u> and <u>perpendicular</u> lines around your home?

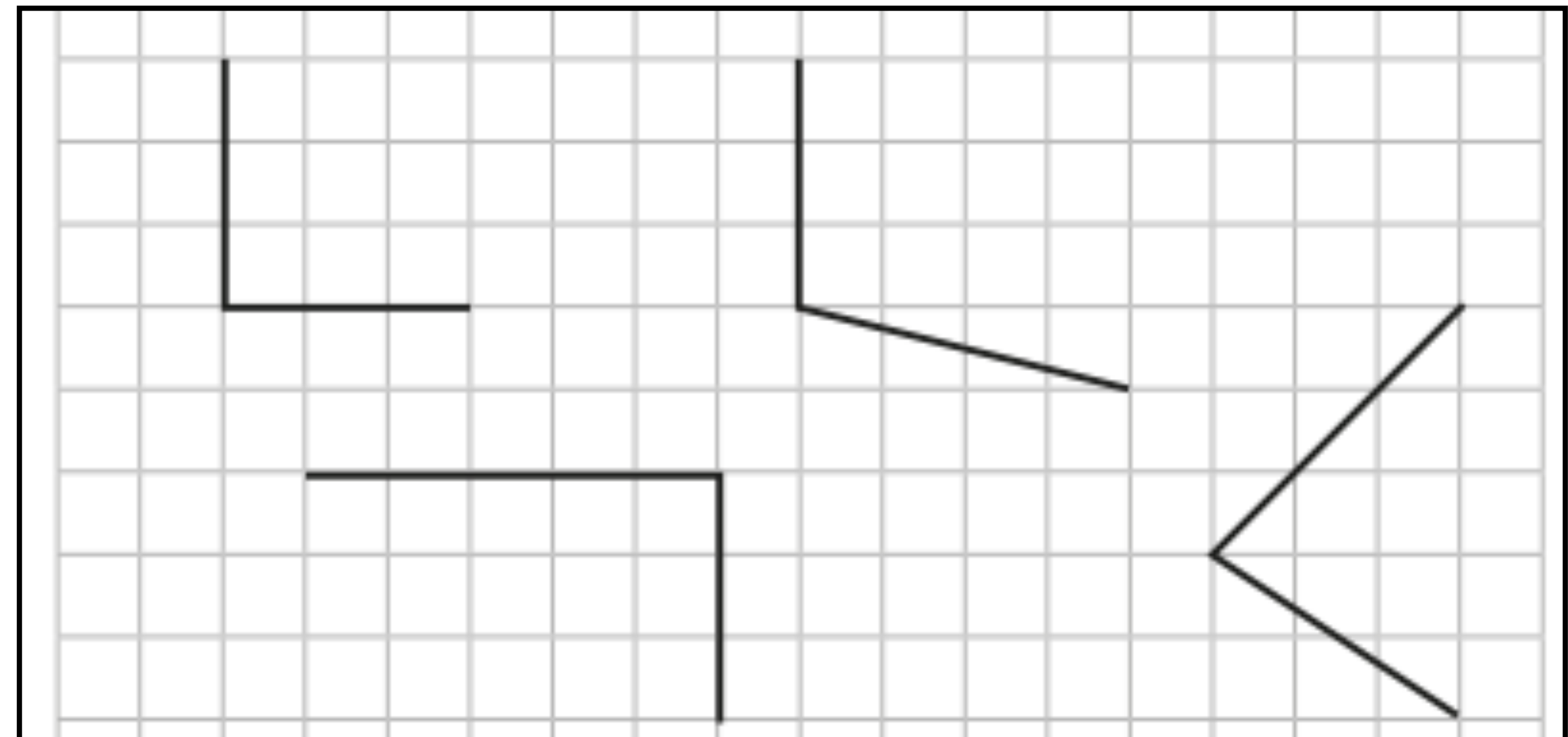# Parallel and Perpendicular lines

Which lines are parallel?

Parallel lines are always the same distance apart. They will never meet!
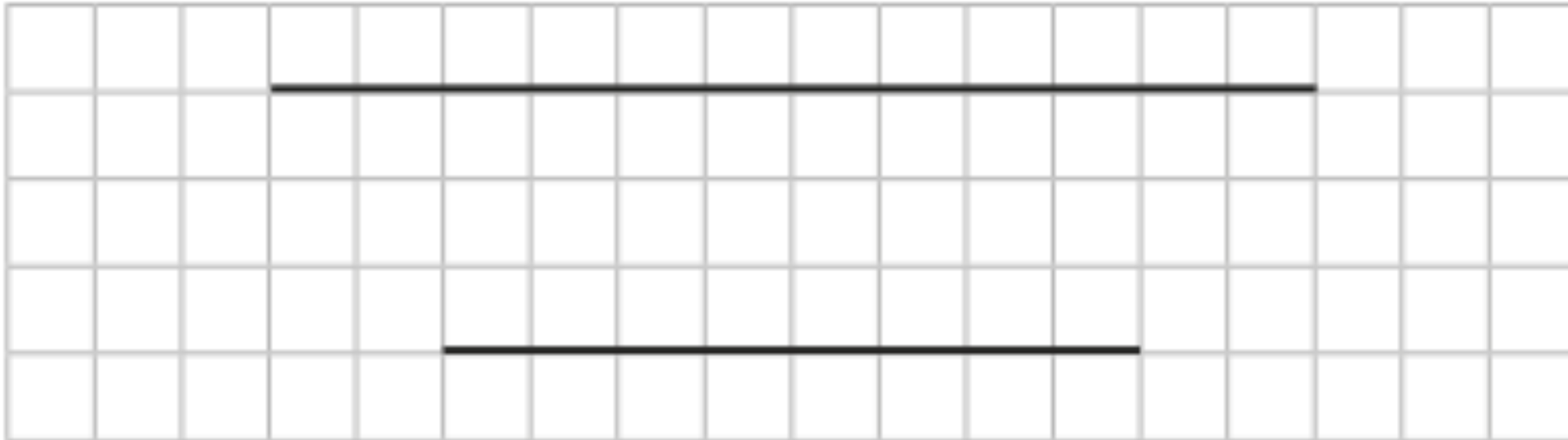
Perpendicular lines always cross at right angles.

Which lines are perpendicular?

Parallel and Perpendicular lines

Amir says that the lines are not parallel because they are different lengths.
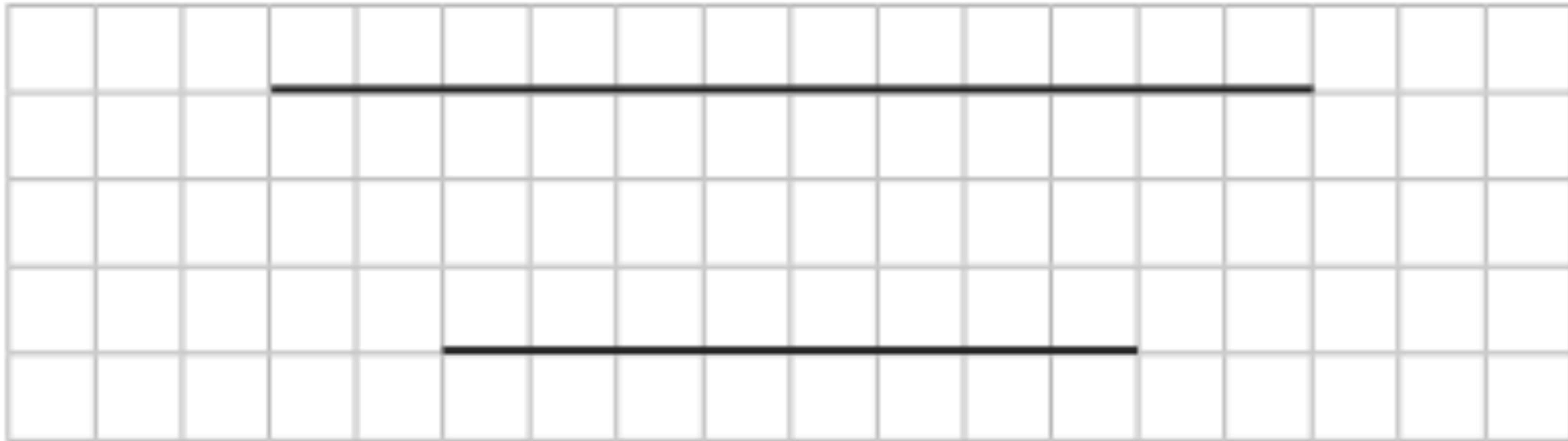
Is Amir correct? _____

Why?

Parallel and Perpendicular lines

Amir says that the lines are not parallel because they are different lengths.

Is Amir correct? __No__

Why? *The lines are are parallel because they are the same distance apart so they will never meet.*
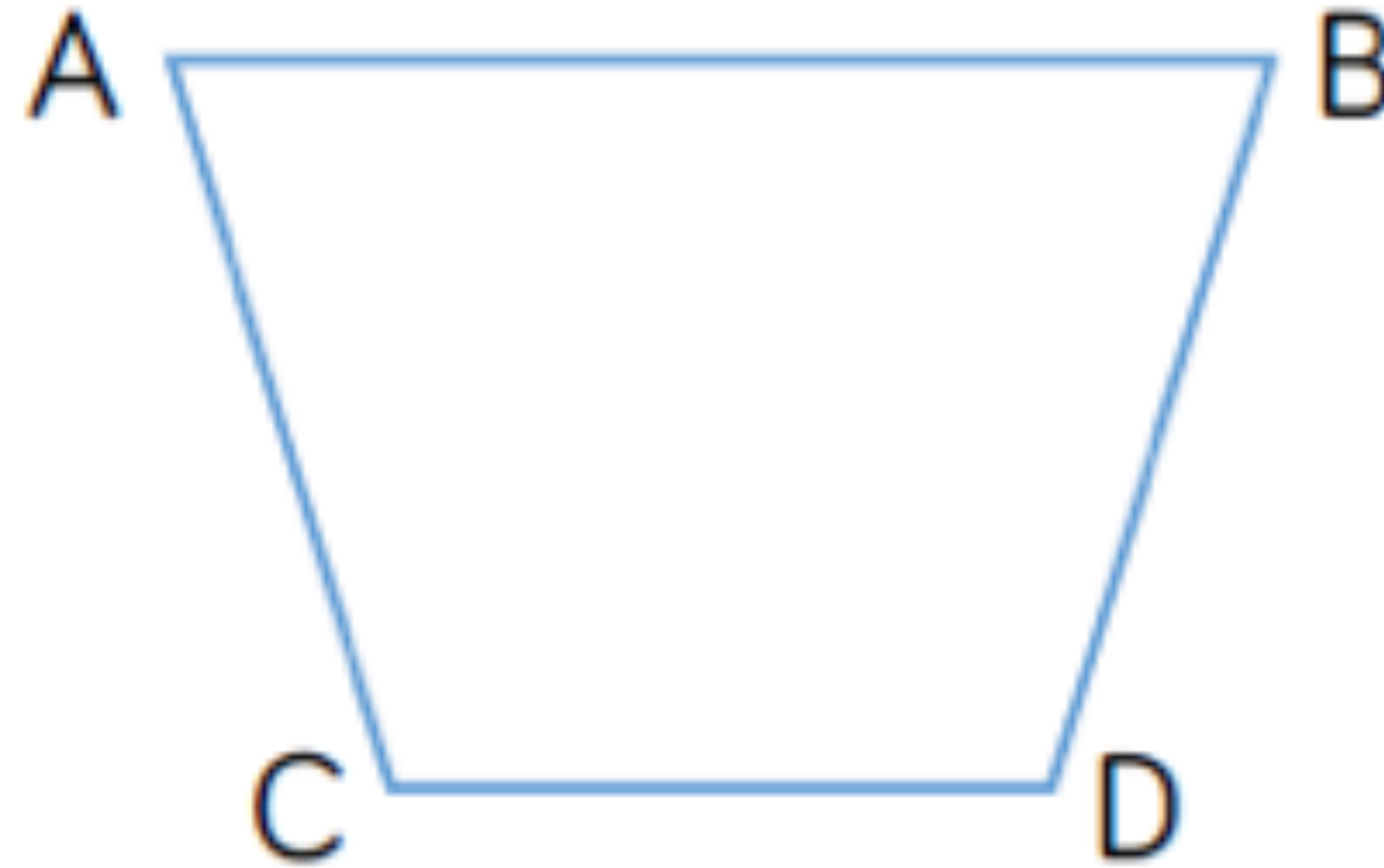
Deeper Learning

These lines are NOT parallel.
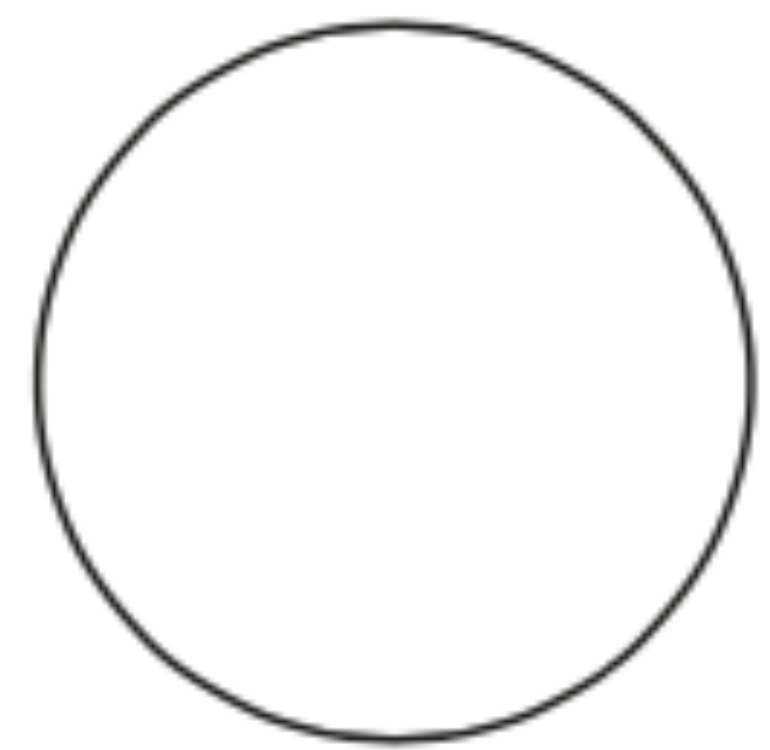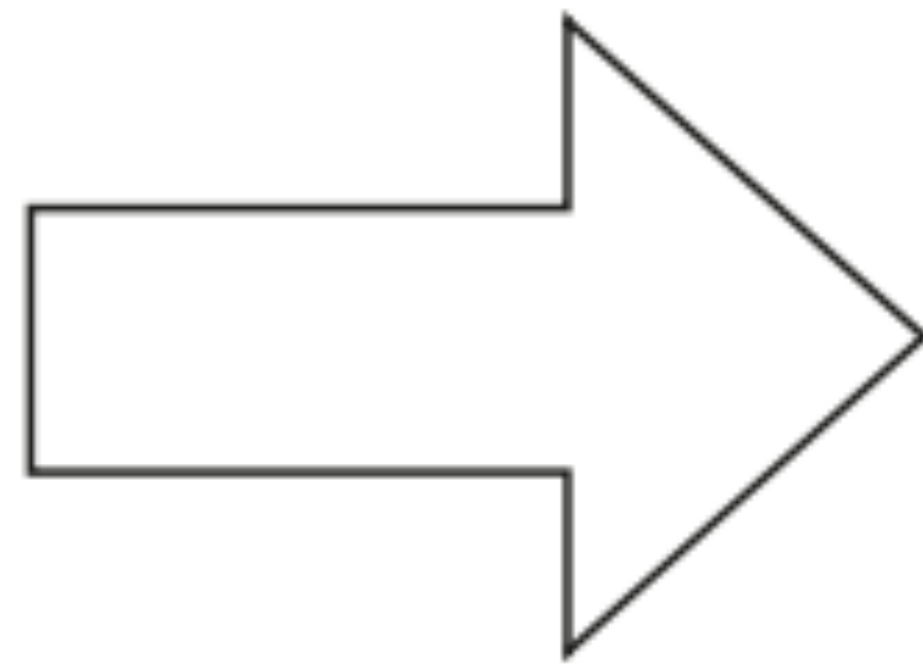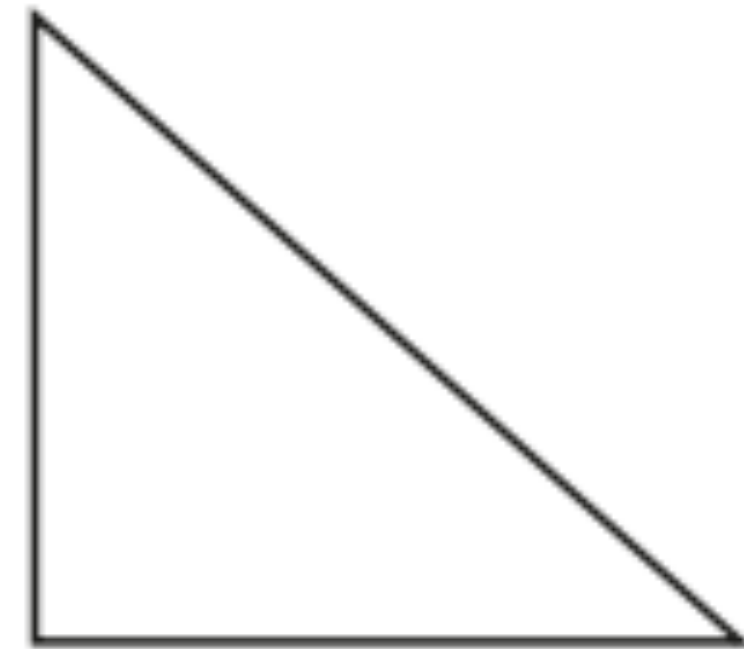
Convince me.

Deeper Learning

True or False?

a) Line AB is parallel to line CD.
b) Line AC is parallel to line BD.
c) Line AC is perpendicular to line CD.

Redraw the shape so that line BD is perpendicular to line CD.

Identifying lines on shapes

Look at these shapes:

Can you find the different types of lines...

Horizontal?   Vertical?   Parallel?   Perpendicular?