

# Angles

## Identifying and Measuring

# IXL Practice

Complete these two skill sections after the lesson

## **Level G - Two-dimensional figures -**

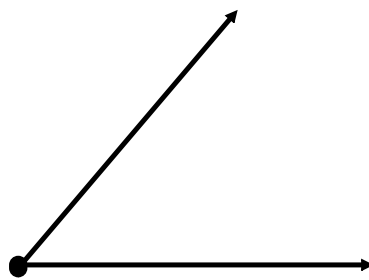
- **W.5 Types of Angles**

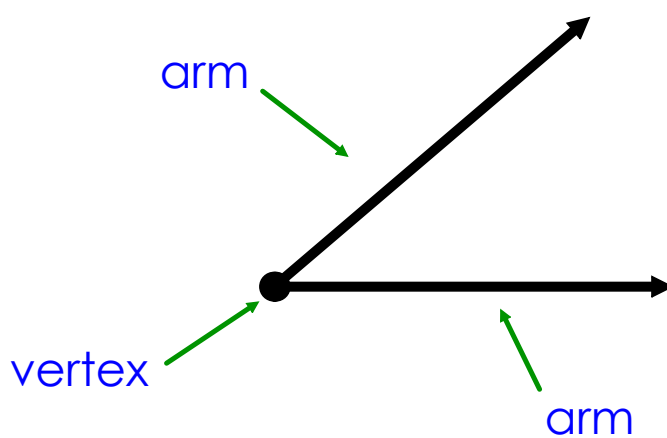
Link: <https://ca.ixl.com/math/level-g/types-of-angles>

- **W.6 Measure angles with a protractor  
(No protractor required)**

Link: <https://ca.ixl.com/math/level-g/measure-angles-with-a-protractor>

This is an example of an angle

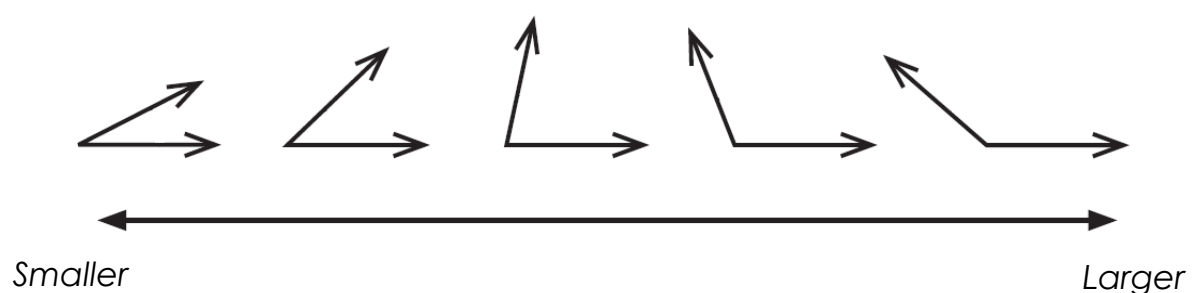




An Angle is made up of two arms (rays or lines) and a vertex. You may recognize the word vertex, it is the singular form of vertices (the corners of polygons, prisms and pyramids).

Draw 3 **angles** on a piece of paper using a ruler or any straight edge available.

Identify the **vertex and arms** of each of the **angles**.

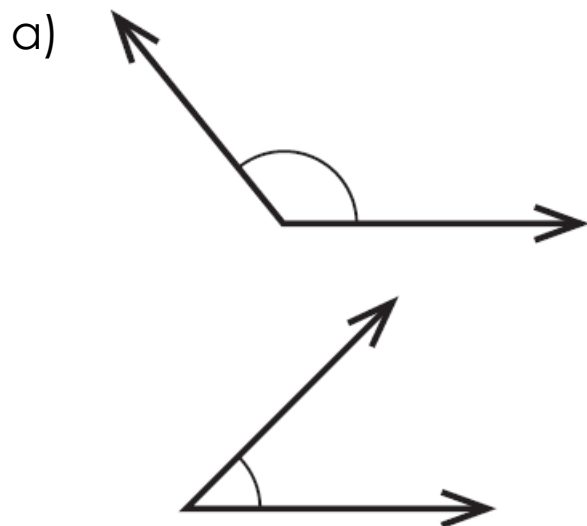


Here we have a comparison of small and larger angles. You can see that smaller angles' arms are closer together and larger angles' arms are further apart.

Angles are always turning around one point (the vertex).

Exercises:

Which **angle** in the pair is larger.



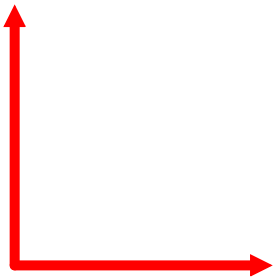
Justify your answer (Why do you think that angle is larger?)

What unit do we use to measure angles?

**Degrees**



Right angle = 90 degrees

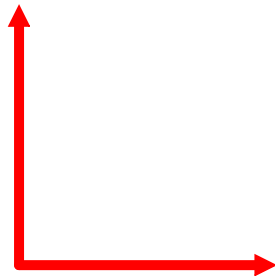


Straight angle = 180 degrees

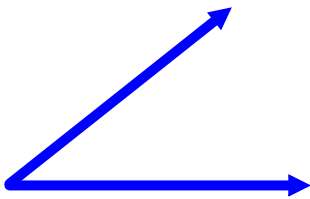


Writing the word "degrees" takes time, so we use the symbol "°" instead.

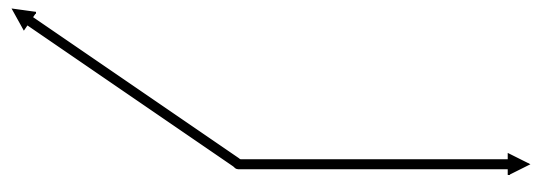
Example: 90 degrees = 90°



Acute  
 $1^\circ - 89^\circ$  (degrees)

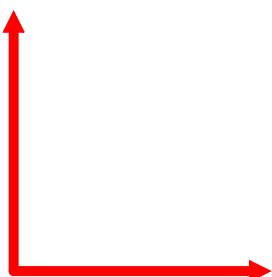


Obtuse  
 $91^\circ - 179^\circ$  (degrees)



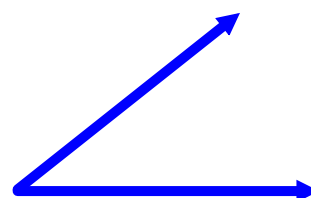
### Right Angle

Exactly 90 degrees



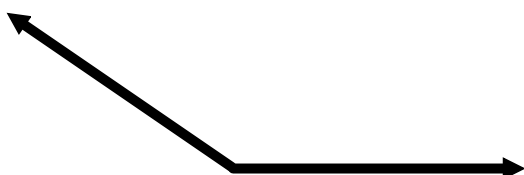
### Acute Angle

Less than 90 degrees



### Obtuse Angle

More than 90 degrees



### Straight Angle

Exactly 180 degrees



Acute or obtuse?

$89^\circ$

$34^\circ$

$142^\circ$

Acute or obtuse?

$89^\circ$

**Acute**

Because it's  
between  $0^\circ$ - $90^\circ$

$34^\circ$

**Acute**

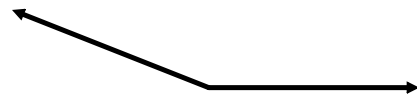
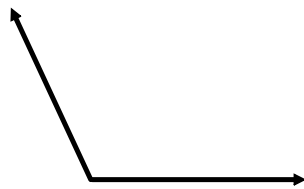
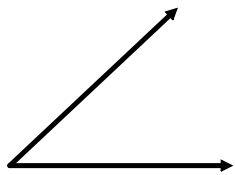
Because it's between  $0^\circ$ - $90^\circ$

$142^\circ$

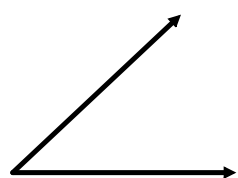
**Obtuse**

Because it's between  
 $90^\circ$ - $180^\circ$

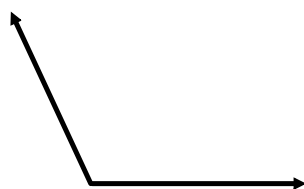
More or less than  $90^\circ$ ?



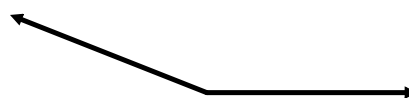
Answers



Acute - Less Than



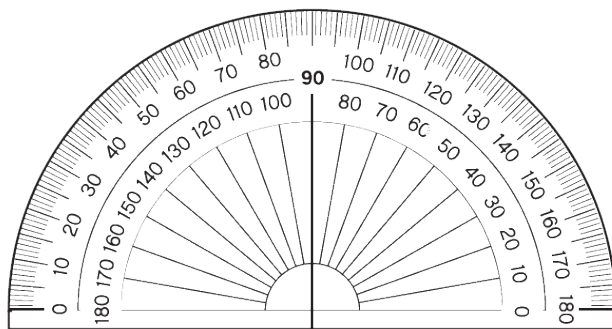
Obtuse - More Than



Obtuse - More Than

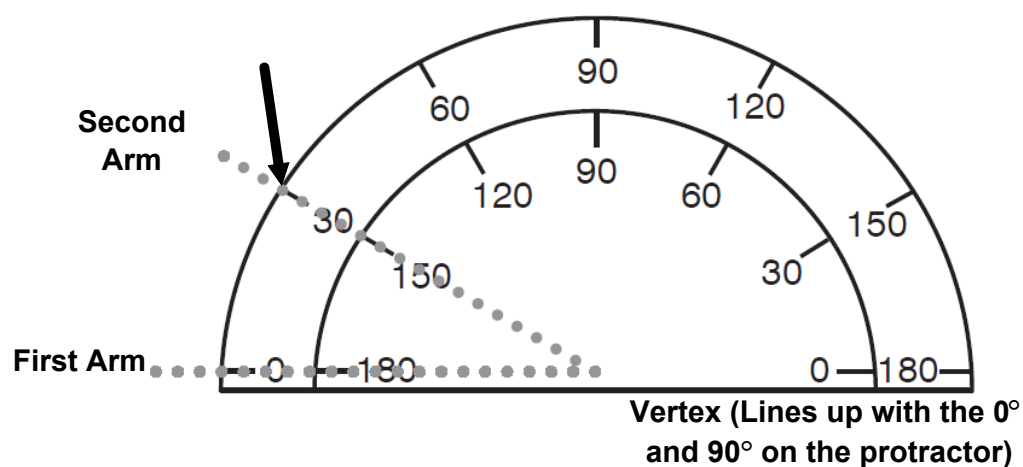


The tool we use to measure **angles** is called a **protractor**.

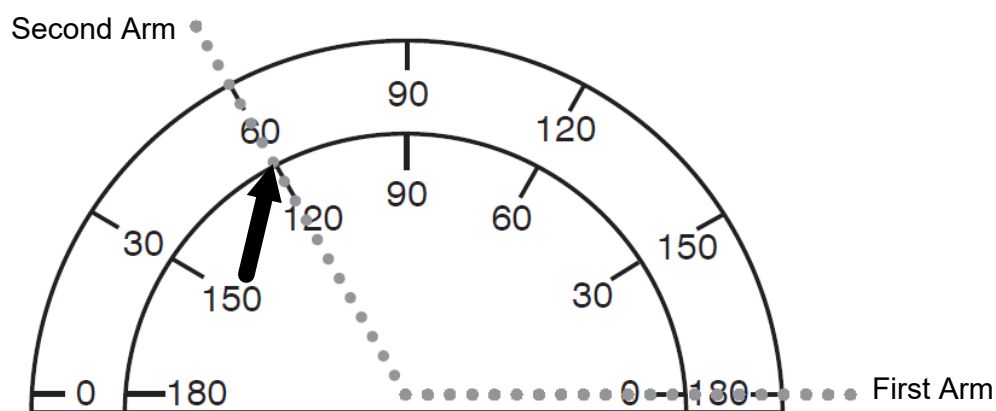


Look at this **protractor**.

How is it similar to a ruler? How is it different?



Here is an example of measuring angles. This angle as you can see is acute, so we are looking at the lesser of the two numbers indicated at the second arm. So the measurement of this angle is  $30^\circ$  (degrees)



This angle is "open" the opposite way. This is a good chance to use the mirrored side of the protractor. **The protractor can be used both ways.** That is why each side has  $0^\circ$  and  $180^\circ$ . In this example we notice that the angle is obtuse, so its second hand will be measured with the greater number shown. So, this angle measures  $120^\circ$ .

# Turns and Angles

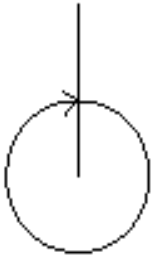
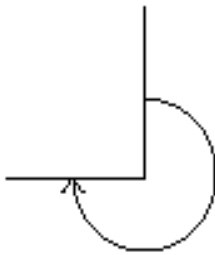

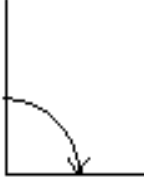
90 degree turn =  $\frac{1}{4}$  (Quarter) turn

180 degree turn =  $\frac{1}{2}$  (Half) turn

270 degree turn =  $\frac{3}{4}$  (Three-Quarter) turn

360 degree turn = 1 (Full) turn

# Turns

			
1 turn is $360^\circ$	$\frac{3}{4}$ turn is $270^\circ$	$\frac{1}{2}$ turn is $180^\circ$	$\frac{1}{4}$ turn is $90^\circ$

# Lesson Over

**And Now...**

**Enrichment and  
Skills to Practice**

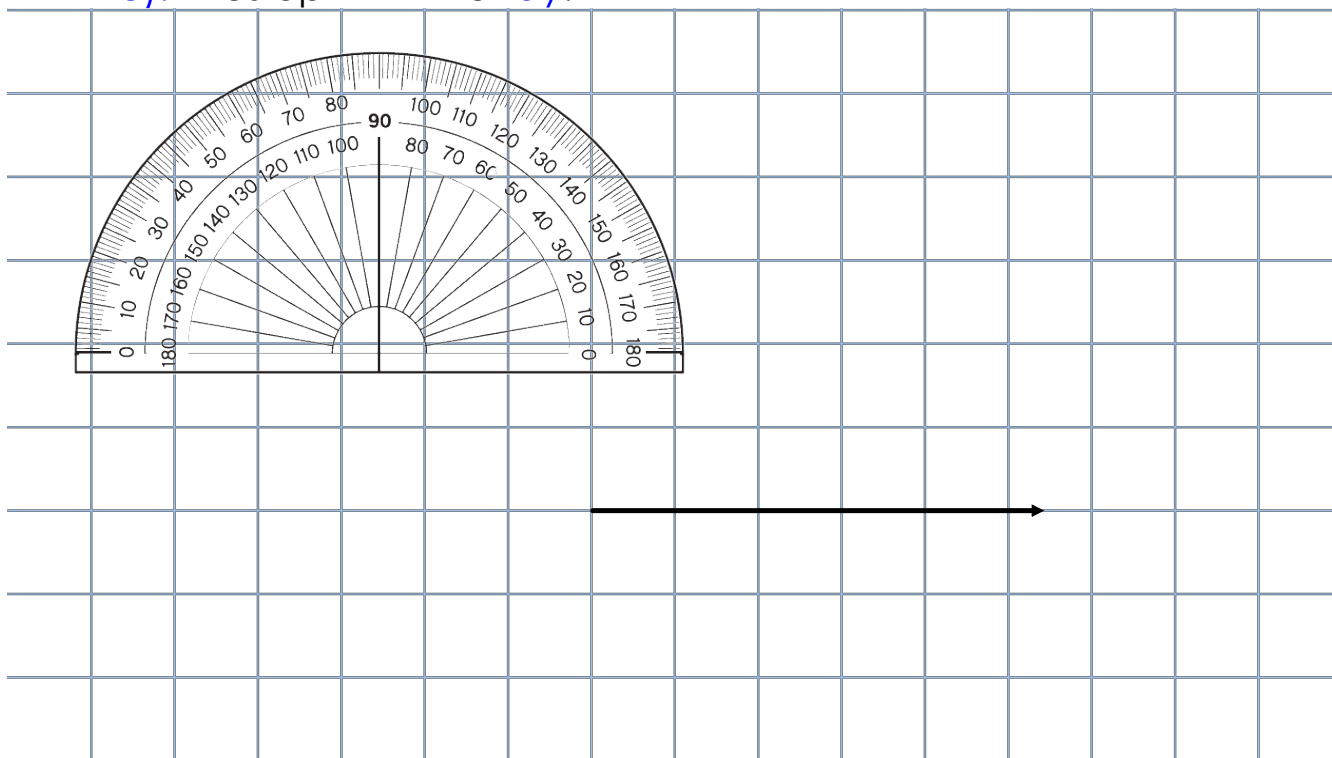
# Enrichment

- 1) Find 2 letters of the alphabet that have at least two **right angles**.
  
- 2) Find a letter of the alphabet that has exactly three **right angles**.
  
- 3) Find at least 3 letters that have an **acute angle**.
  
- 4) Find 3 letters that have an **obtuse angle**.

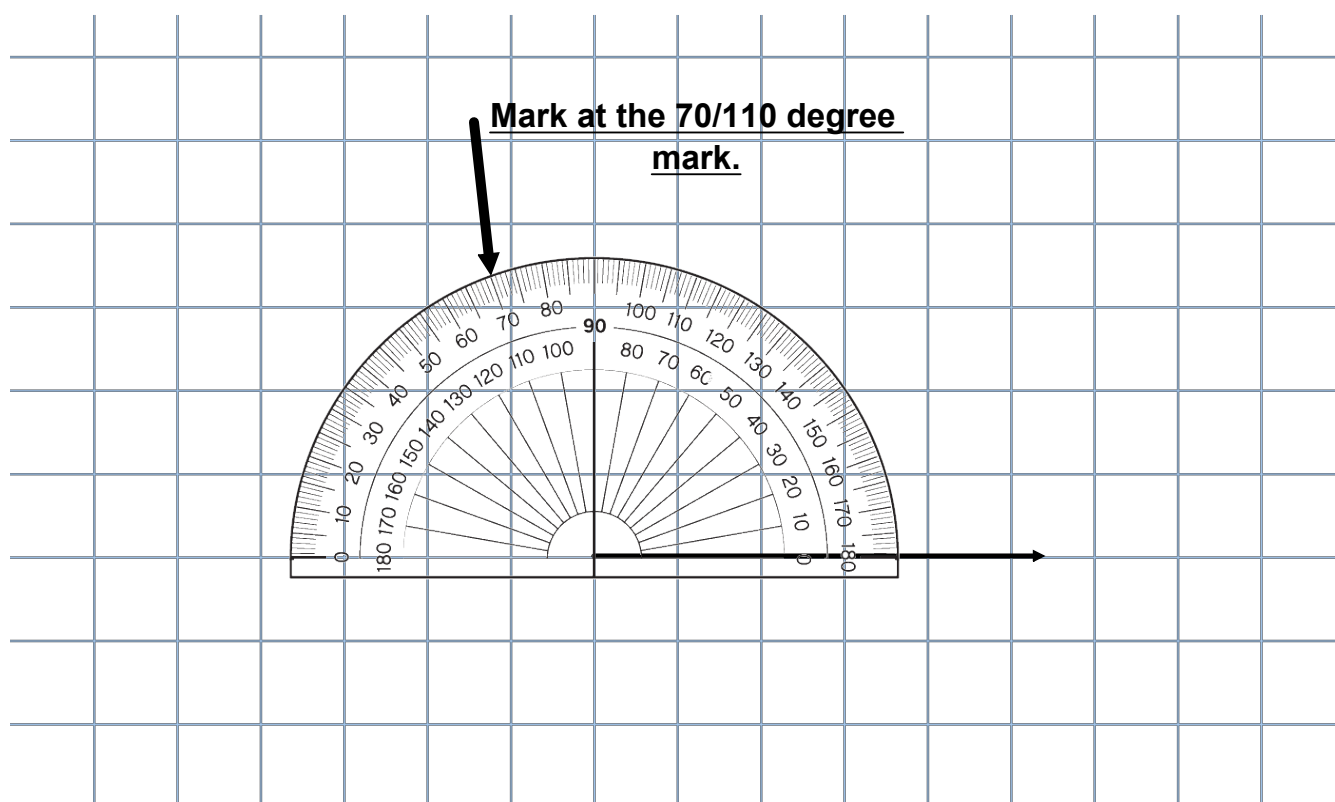
# Constructing Angles



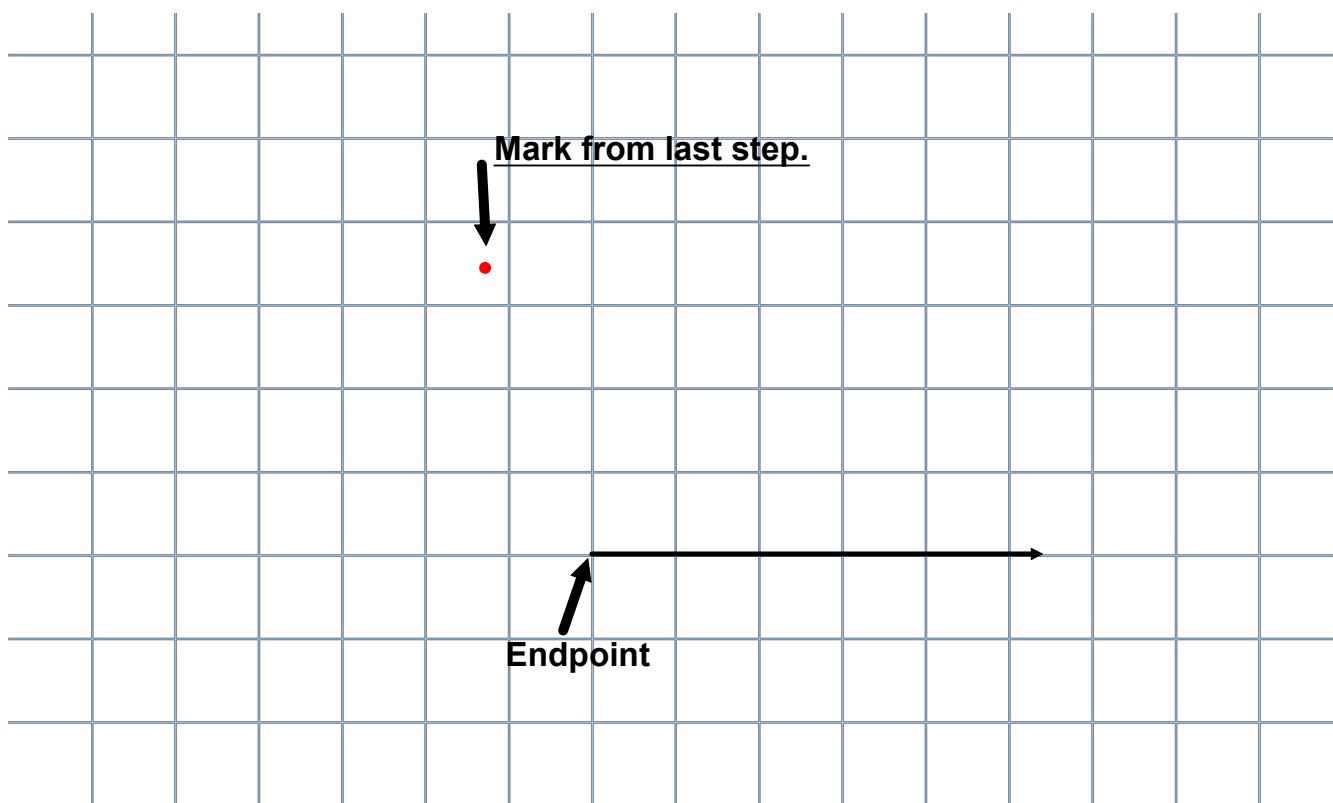
**Step 1:** Draw a ray (a line) as shown. Place the protractor so that the origin (0 degree mark) is on the endpoint of the ray and the baseline (continuation of the 0 degree line) lines up with the ray.



**Step 2:** Make a mark at the correct measure ( $110^\circ$ ).  
Remove the **protractor**.



Step 3: Use a ruler to draw a **ray (line)** from the **endpoint** to the mark.



**Step 4: The angle is complete!**

