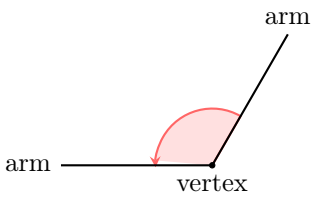
ANGLES

Angles are a fundamental concept in geometry. They are formed when two rays meet at a single point, called the vertex.

A DEFINITION

Definition Angle

An **angle** is the measure of rotation between two rays that share a common endpoint, called the vertex.

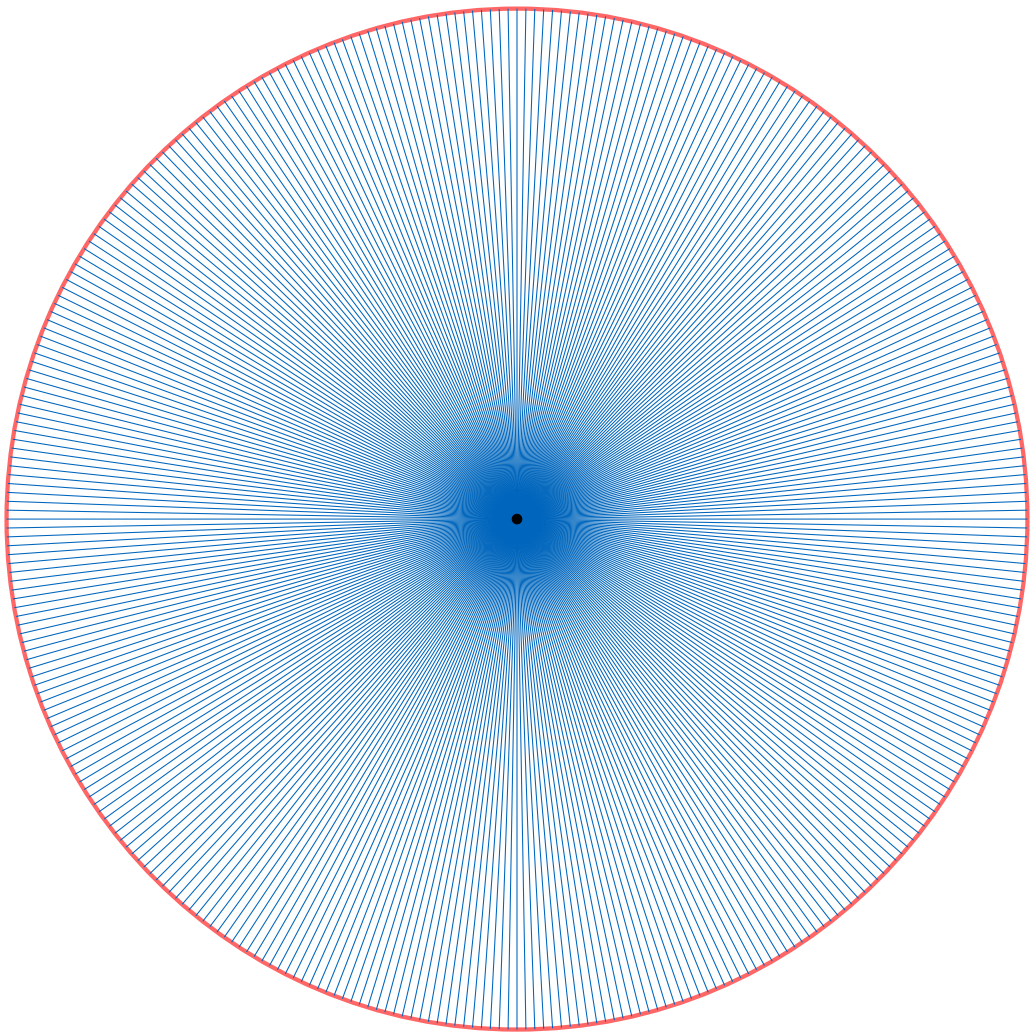


B DEGREES

A full turn, or complete circle, is divided into 360 equal parts called degrees, a convention established by ancient Babylonian astronomers.

Definition Degree Unit

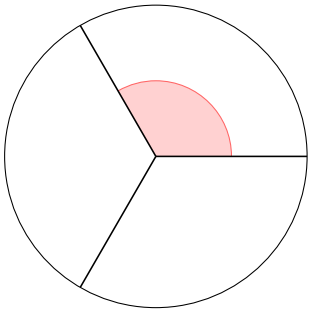
A **degree** is a unit of angle measurement. A full turn measures 360°.



Definition Measure of an Angle in Degrees

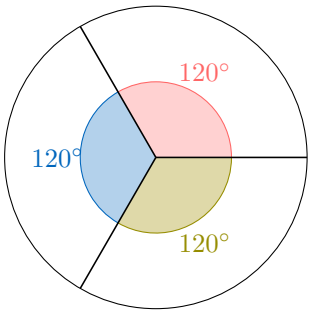
The **measure of an angle in degrees** is the fraction of a full turn it represents.

Ex: Calculate the measure of an angle that represents one-third of a full turn.



Answer:

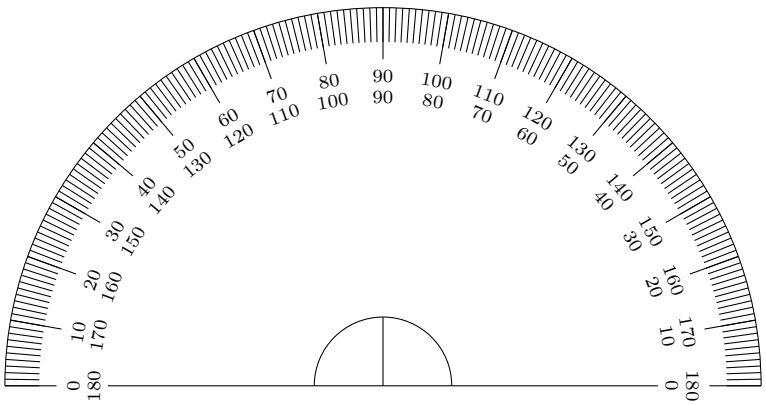
$$\begin{aligned}\text{Angle} &= \frac{1}{3} \text{ of } 360^\circ \\ &= 360^\circ \div 3 \\ &= 120^\circ\end{aligned}$$



C MEASURING AND DRAWING ANGLES WITH A PROTRACTOR

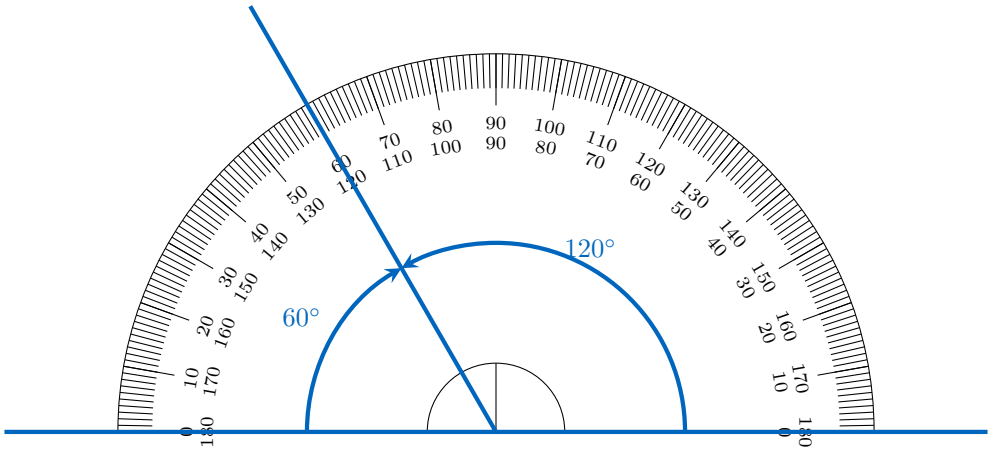
Definition **Protractor**

A **protractor** is a tool used to measure and draw angles in degrees. It is typically a semi-circular tool with a scale marked from 0° to 180°.

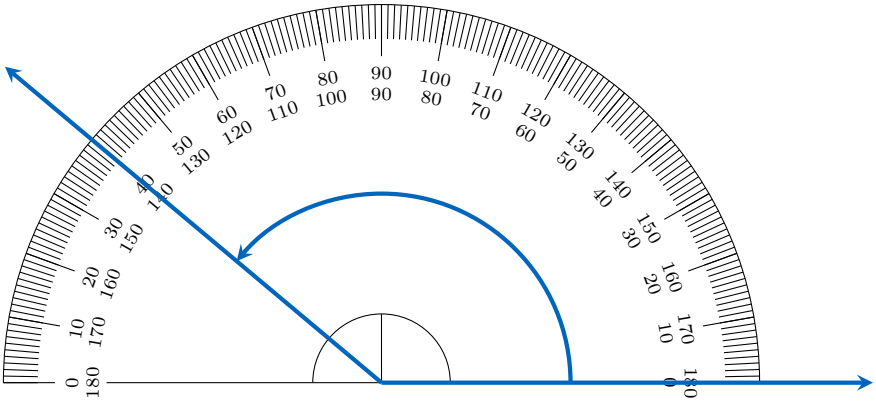


Method **Measuring an Angle with a Protractor**

1. Place the protractor's origin (center point) over the vertex of the angle.
2. Align one ray of the angle with the protractor's baseline (the 0° mark).
3. Observe where the other ray intersects the protractor's scale.
4. Read the angle measure in degrees from the scale.



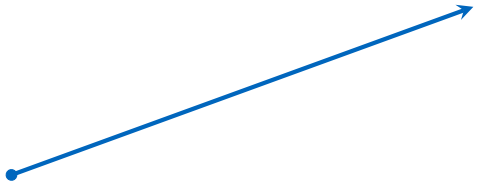
Ex: Measure the following angle.



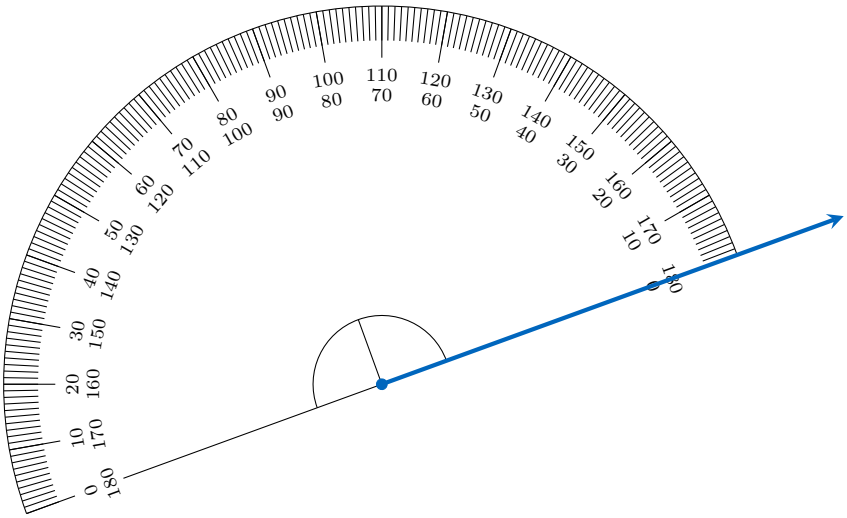
Answer: The angle measures 140°.

Method **Drawing an Angle with a Protractor**

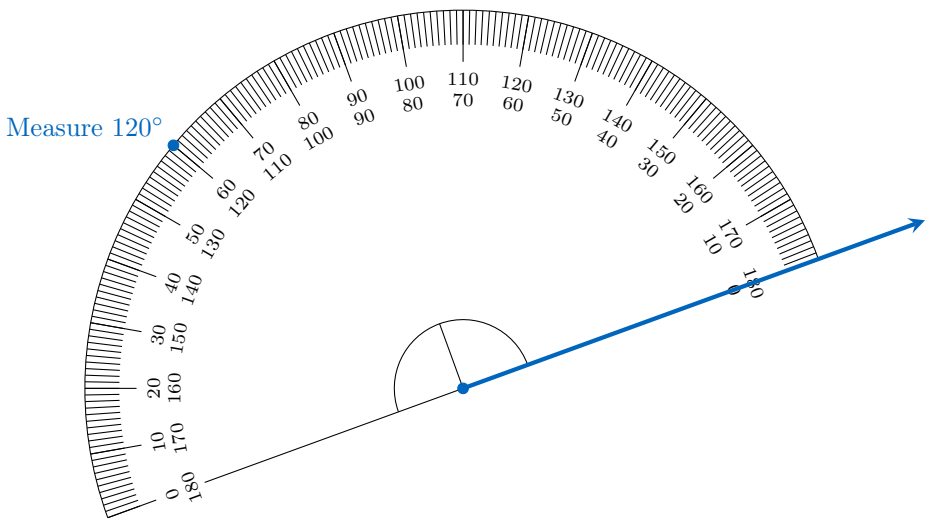
1. Draw a ray starting from a point (the vertex).



2. Place the protractor's origin over the vertex and align the baseline with the ray.



3. Locate the desired angle measure on the protractor's scale and mark the point.



4. Draw a second ray from the vertex through the marked point to form the angle.