



4th  
Basic

5th  
Advanced

# Helping With Math

USA  
GRADES

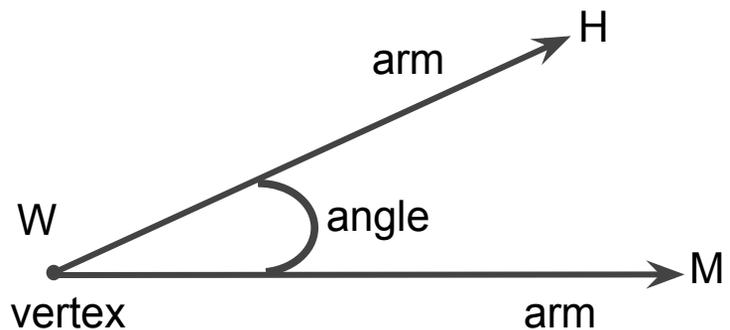
## Angle Measurements

Suitable for students  
aged 8-10



This pack is suitable for learners aged 8-10 years old or 4th to 5th graders (USA). The content covers fact files and relevant basic and advanced activities involving angle measurements.

In geometry, an angle can be defined as the figure formed by two rays meeting at a common endpoint called vertex. Angle measures the amount of turn of its rays in degrees.



*This is angle HWM or  $\angle HWM$ .*

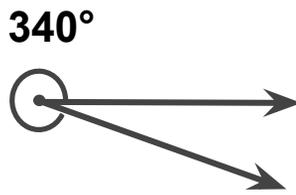
- **Arms:**
  - The two rays joining to form an angle are called arms of an angle. Here, WH and WM are the arms of the  $\angle HWM$ .
- **Vertex:**
  - The common end point at which the two rays meet to form an angle is called the vertex. Here, the point W is the vertex of  $\angle HWM$ .



## TYPES OF ANGLES BASED ON MEASUREMENTS



Straight Angle



Reflex Angle

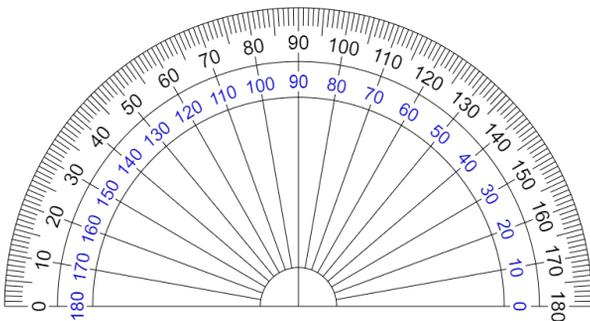


Complete Angle

### REMEMBER!

- ★ **Acute Angles:** angles that are smaller than  $90^\circ$
- ★ **Right Angles:** angles that measure exactly  $90^\circ$
- ★ **Obtuse Angles:** angles that measure more than  $90^\circ$  but less than  $180^\circ$ .
- ★ **Straight Angles:** angles that measure exactly  $180^\circ$
- ★ **Reflex Angles:** angles that measure more than  $180^\circ$  but less than  $360^\circ$
- ★ **Full Rotation:** angles that measure exactly  $360^\circ$

### DRAWING ANGLES USING PROTRACTOR

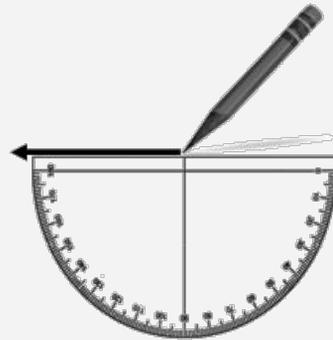


**Protractor** is an instrument for measuring angles, typically in the form of a flat semicircle marked with degrees along the curved edge.

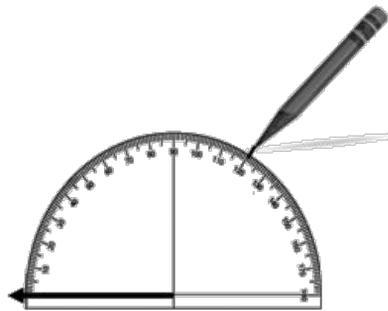


## DRAWING ANGLES USING A PROTRACTOR

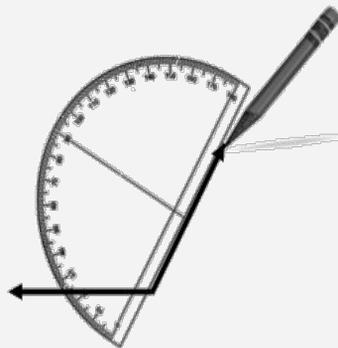
1. Begin by using the protractor's straight edge to draw the first ray.



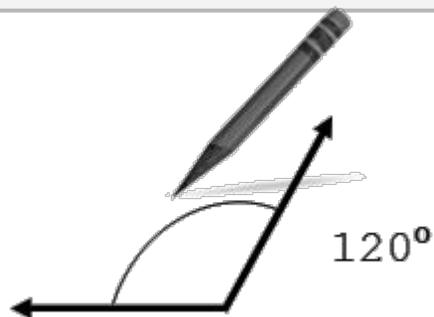
2. Line up the endpoint of the ray with the crossed lines on the straight edge of the protractor. Follow the numbers on the curve and make a mark by the number of the angle you want to draw.



3. Use the straight edge to connect the mark with the endpoint of the first ray.



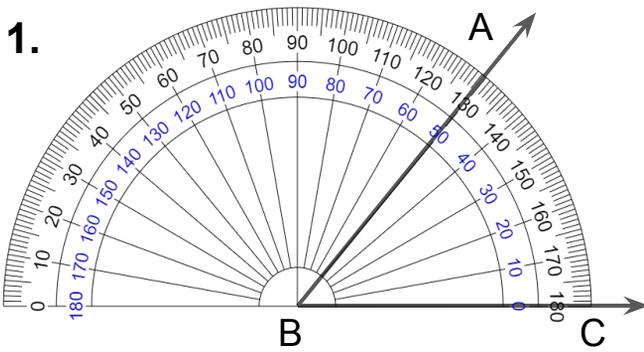
4. Label the angle with the correct measurement.



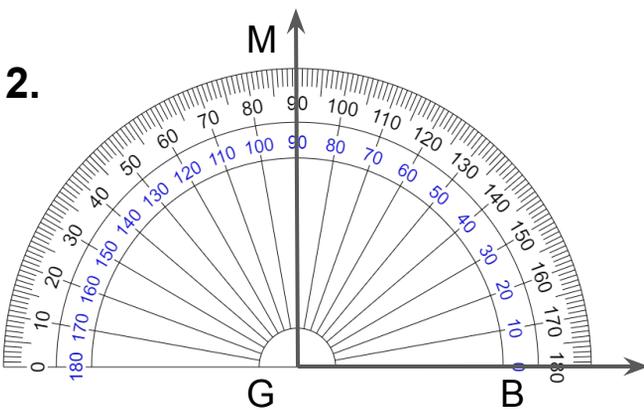
# MEASURING ANGLES USING A PROTRACTOR

## Measuring Angles Using a Protractor

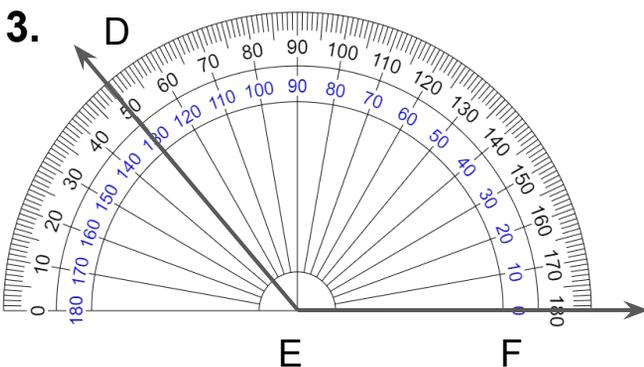
1. Identify the vertex, or center point, of the angle.
2. Place the origin/center-point of the protractor over the vertex.
3. Line up the bottom edge of the protractor with one of the edges, or rays of the angle.
4. Read the measurement of the angle.



Name of the angle: \_\_\_\_\_  
Measure of the Angle: \_\_\_\_\_  
Classification of Angle: \_\_\_\_\_



Name of the angle: \_\_\_\_\_  
Measure of the Angle: \_\_\_\_\_  
Classification of Angle: \_\_\_\_\_



Name of the angle: \_\_\_\_\_  
Measure of the Angle: \_\_\_\_\_  
Classification of Angle: \_\_\_\_\_



# TABLE OF ACTIVITIES

<b>Ages 8-9</b> (Basic)		<u>4th Grade</u>
1	Angle Ship	
2	Cruise Ship Placement	
3	The Cruise Ship Passengers	
4	Identifying Directions	
5	T or F at the Cruise Ship	
<b>Ages 9-10</b> (Advanced)		<u>5th Grade</u>
6	Cabin Crew at Work	
7	The Sailor Man	
8	The Working Ship Man	
9	DIY Angles	
10	Captain's Wheel	



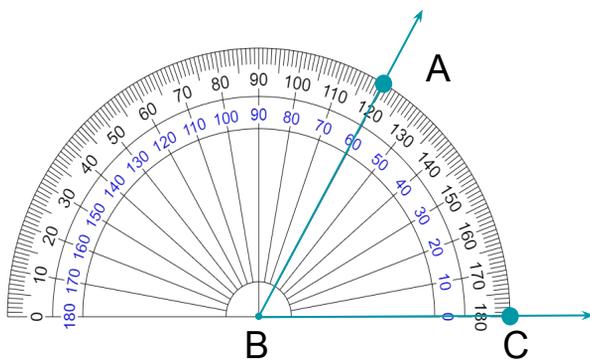
# ANGLE SHIP

G4  
Basic

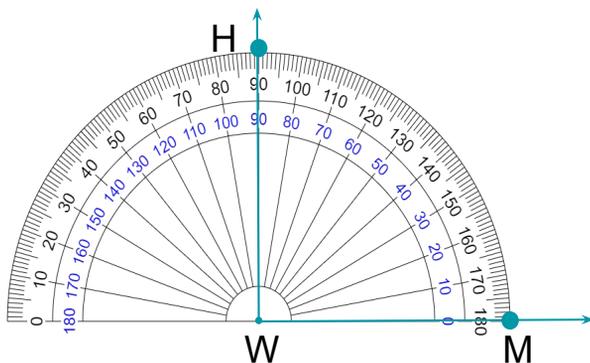
Carefully examine each angle below. Using the illustration, complete the details of the table.

	Item number 1	Item number 2
Name of the Angle		
Name of Arms		
Name of the Vertex		
Angle measure		

1.



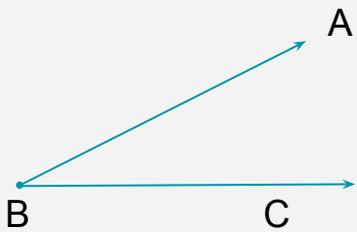
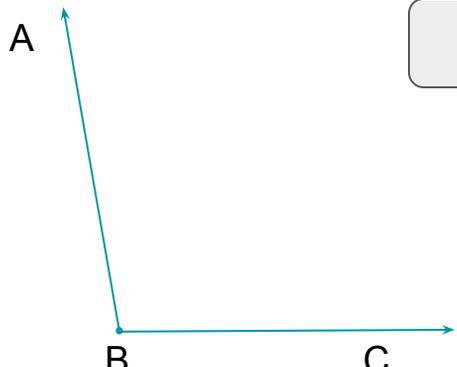
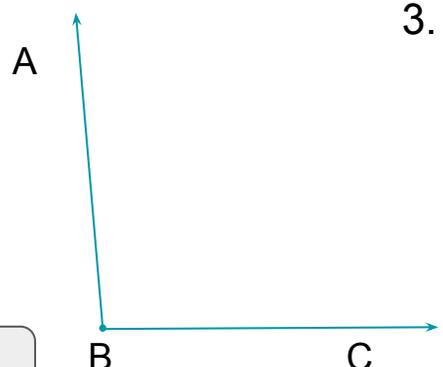
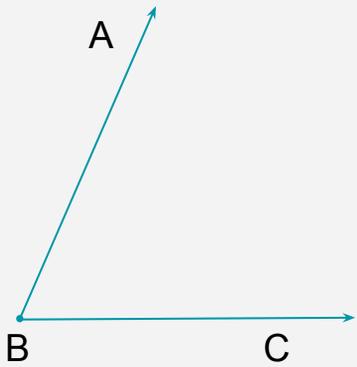
2.

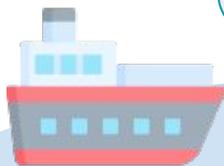


# CRUISE SHIP PLACEMENT

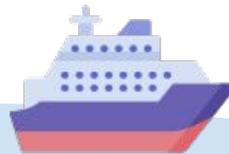
G4  
Basic

Match the following angle measures to its corresponding illustration. Write the letter of your choice on the box.

<p>1. <input type="text"/></p> 	<p>2. <input type="text"/></p> 
<p>3. <input type="text"/></p> 	<p>4. <input type="text"/></p> 



A.  $95^\circ$



C.  $35^\circ$



B.  $65^\circ$



D.  $100^\circ$



# THE CRUISE SHIP PASSENGERS

G4  
Basic

If the angle measurements are to be considered passengers of each cruise ship, which among them has to be on board for each column?



Acute angles



Obtuse angles



Reflex angles



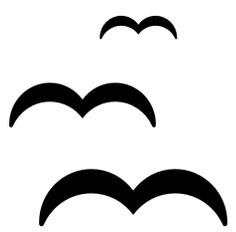
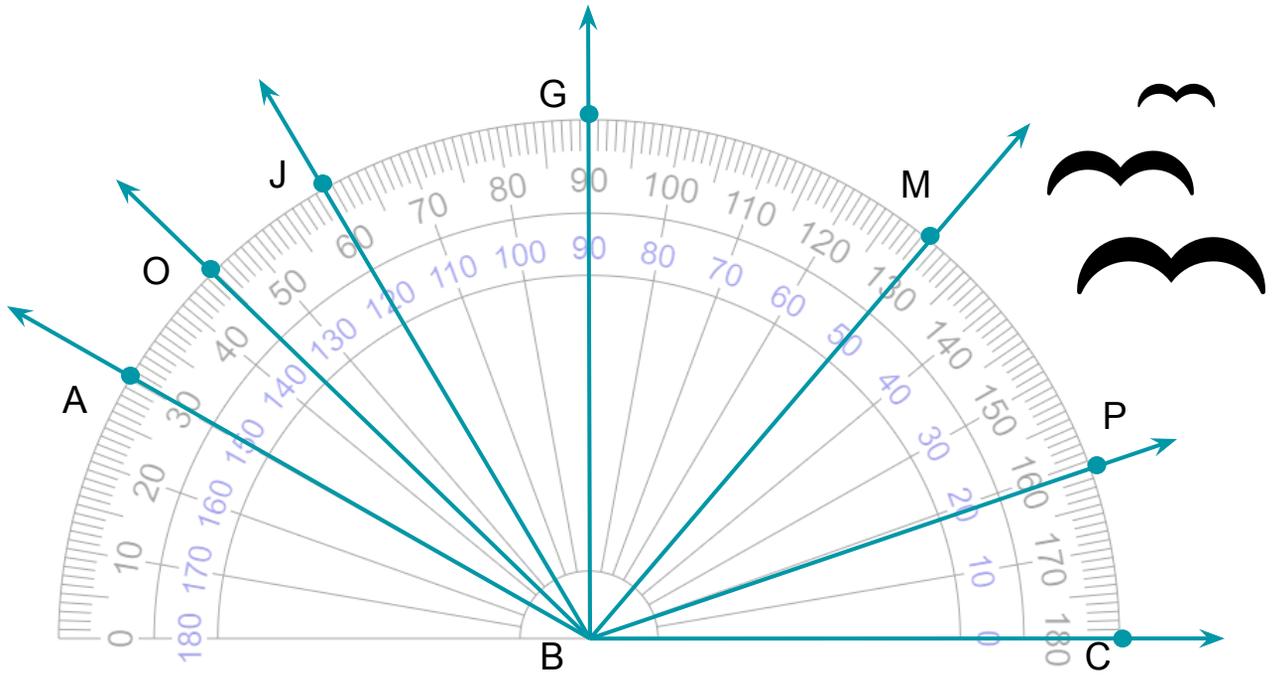
89°	12°	91°	200°	10°
150°	213°	67°	21°	185°
105°	342°	11°	100°	190°
300°	275°	30°	60°	103°



# IDENTIFYING DIRECTIONS

G4  
Basic

Help the captain of the HWM ship identify the name and the measurement of each angle.



Angle Name	Angle Measure



# T OR F AT THE CRUISE SHIP

G4  
Basic

Read and understand each statement below. Help the captain of HWM Cruise Ship sort out which of them are TRUE or FALSE. Write T if is a correct statement. Otherwise, replace the underlined word/s to make it valid.

1. Acute angle is a type of angle whose measurement is less than  $90^\circ$ .

2. Any angle whose measurement is ranging from  $100^\circ$  to  $175^\circ$  are considered obtuse.

3. An angle whose measurement is  $250^\circ$  is an acute angle.

4. All right angles are more than or equal to  $90^\circ$ .

5.  $89.5^\circ$  is an example of reflex angle.

6. The vertex of an angle is where the two arms meet.



# CABIN CREW AT WORK

G5  
Advanced

Make sure to assist these cabin crew at their work space by tracing the angle that they are heading. A starting point (vertex) is already made for you.

**Note:** You will be needing your protractor to accomplish this activity.



Draw a  $45^\circ$  angle.



Illustrate a  $110^\circ$  angle.



Construct an  $87^\circ$  angle.



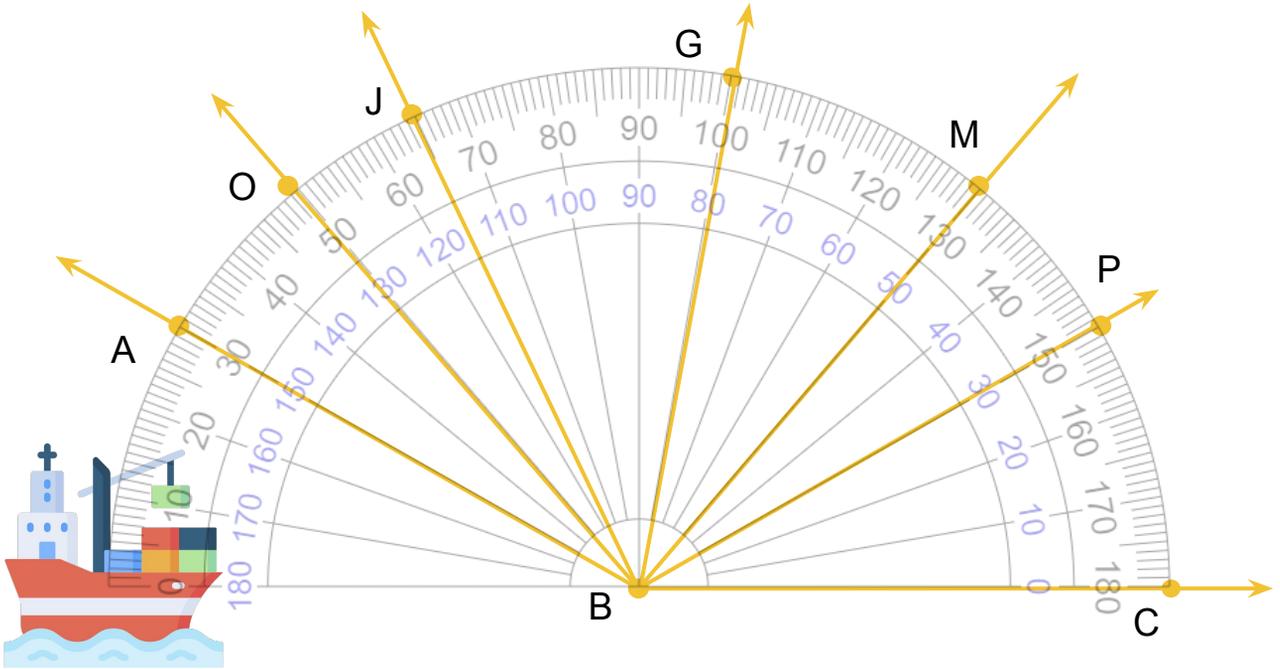
Show a  $104^\circ$  angle.



# THE SAILOR MAN

G5  
Advanced

Help Sam the sailor man identify the measurement of each angle. By the way, he needs a protractor to do that.



Write your answers here.



# THE WORKING SHIP MAN

G5  
Advanced

Help Allan, the ship man construct the following angle measures. Use a protractor to a more accurate output.

1.  $67^\circ$

2.  $105^\circ$



3.  $230^\circ$

4.  $12^\circ$

5.  $183^\circ$

6.  $300^\circ$



7.  $360^\circ$

8.  $158^\circ$



# DIY ANGLES

G5  
Advanced

Another task was given to Allan, the ship man. This time, he was asked to construct the angles described below.

1. Let point P as the vertex of  $\angle MPQ$ . The measure of  $\angle MPQ$  is  $100^\circ$ . Draw ray PS within  $\angle MPQ$ . You now formed two adjacent angles. If  $\angle MPS = 48^\circ$ , what is the measurement of  $\angle SPQ$ ?

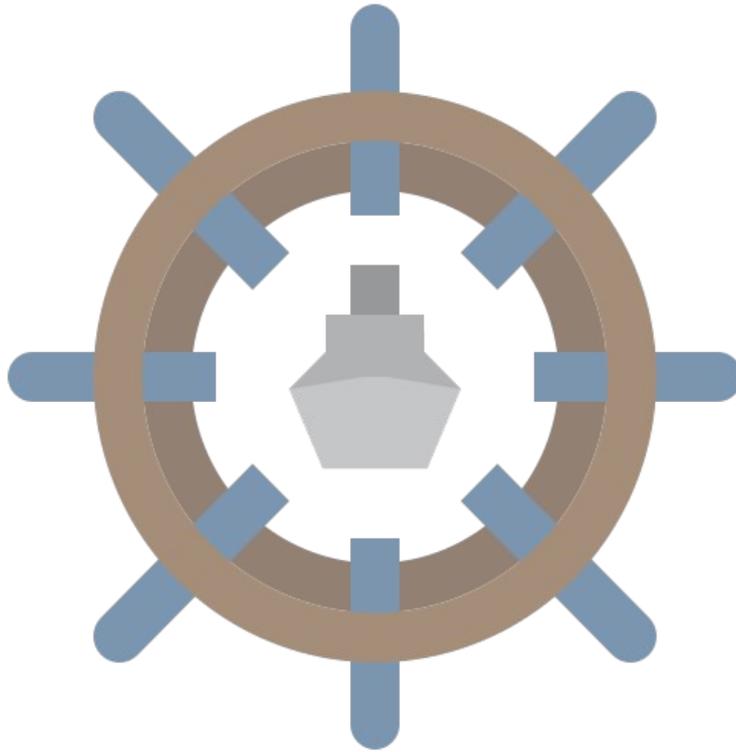
2. Using the same given angle  $\angle MPQ = 100^\circ$ , create another set of adjacent angles. But this time, make three adjacent angles. (Answers may vary per learner)



# CAPTAIN'S WHEEL

G5  
Advanced

Given below is the Captain's wheel. Using your protractor, measure each angle that you can see. Then add those measures. What did you find out about the total measure?



Write your findings here (at least 5 sentences).



# ANSWER GUIDE

## Activity 1

	Item number 1	Item number 2
Name of the Angle	Angle ABC	Angle HWM
Name of Arms	Side BA Side BC	Side WH Side WM
Name of the Vertex	Angle B	Angle W
Angle measure	60 degrees	90 degrees

## Activity 2

1. C      2. D      3. A      4. B

## Activity 3

Acute angles: 89, 12, 10, 21, 11, 30, and 60

Obtuse angles: 91, 150, 105, 100, 103

Reflex angles: 200, 185, 342, 190, 300, 275

## Activity 5

1. T                      2. T                      3. Reflex angle  
4. Equal                5. Acute                6. T

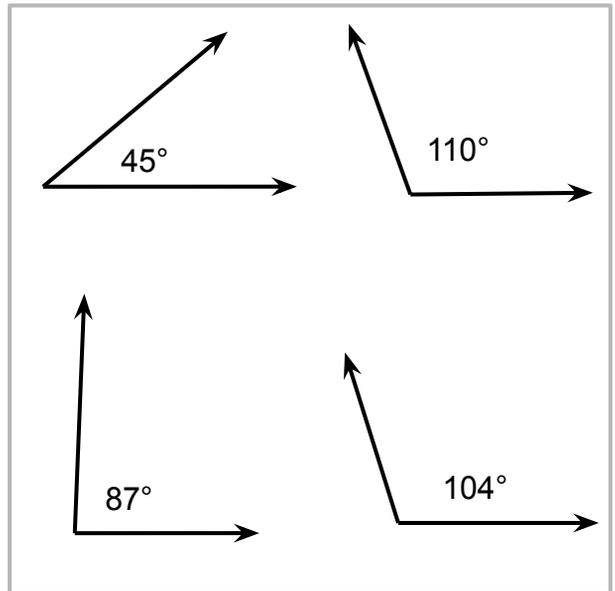


# ANSWER GUIDE

## Activity 4

Angle Name	Angle Measure
CBP	20 degrees
CBM	50 degrees
CBG	90 degrees
CBJ	120 degrees
CBO	135 degrees
CBA	150 degrees

## Activity 6



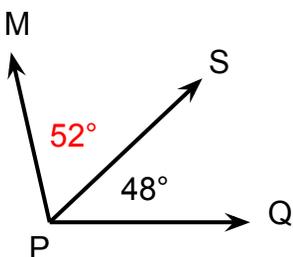
## Activity 7

$$\begin{aligned} \angle CBP &= 30^\circ & \angle CBM &= 50^\circ & \angle CBG &= 100^\circ \\ \angle CBJ &= 115^\circ & \angle CBO &= 130^\circ & \angle CBA &= 150^\circ \end{aligned}$$

## Activity 8

In this activity, learners' outputs are expected to vary visually but angle measurements must be accurate.

## Activity 9



The second activity has answers that may vary per learner.

## Activity 10

The sum of the angles is 360 degrees. Since the wheel is a circle, it is just right to have the angle measure as 360 degrees.



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