

Geometry Definition Lab

Use precise meanings to classify plane figures and lines.

HIGH SCHOOL • GEO-G.CO.1

GEO-G.CO.1 "Know precise definitions of angle, circle, perpendicular lines, parallel lines, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc as these exist within a plane."

NAME _____

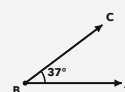
DATE _____

PRECISE GEOMETRY WORDS

An angle is made of two rays with the same endpoint. A circle is all points in a plane the same distance from its center, and a line segment is the part of a line between two endpoints. Distinct parallel lines in a plane never meet, perpendicular lines meet at right angles, and an arc is a part of a circle measured along its curve.

WORKED EXAMPLE

Classify the marked angle.

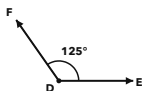


1. The figure shows an angle measure of 37° .
2. 37° is less than a right angle.
3. An angle less than a right angle is acute.

Answer: acute angle

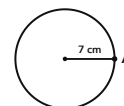
PRACTICE 6 problems

- 1** Classify the marked angle.



ANSWER _____

- 2** The figure shows a circle with center O. What is segment OA called?



ANSWER _____

- 3** Points A and B are endpoints on line l. What do you call the part of line l from A to B, including both endpoints?

ANSWER _____

- 4** Lines r and s are in the same plane. Line r has equation $y = -4x + 1$, and line s has equation $y = 1/4x - 6$. Are the lines parallel, perpendicular, or neither?

ANSWER _____

- 5** The distinct lines p and q have equations $y = 3x - 2$ and $y = 3x + 5$. Are the lines parallel, perpendicular, or neither?

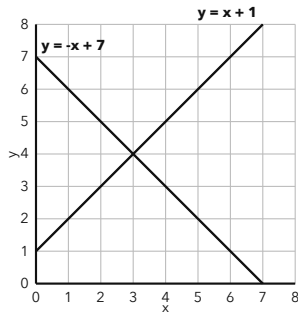
ANSWER _____

- 6** A circle has center C and circumference 36 cm. Minor arc AB is formed by a central angle of 120° . What is the length of minor arc AB?

ANSWER _____

APPLY IT Show your work

- 1** The design grid shows two planned camera-cable paths for the school media club. Do the paths meet at a right angle? Use their slopes to justify your answer.



ANSWER _____

- 2** A student is building a circular LED ring for a gaming display. The ring has radius 21 cm, and one light strip follows a 120° minor arc. What exact length of LED strip is needed?

WORK SPACE

ANSWER _____

CHALLENGE One step up

Lines a , b , and c are distinct. Their equations are $y = -\frac{3}{2}x + 4$, $y = \frac{2}{3}x - 5$, and $y = -\frac{3}{2}x - 1$, respectively. In one or two sentences, classify every pair as parallel, perpendicular, or neither. Explain why lines a and c are not the same line.

WORK SPACE AND ANSWER

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	Classify the marked angle.	obtuse angle
2	The figure shows a circle with center O. What is segment OA called?	radius
3	Points A and B are endpoints on line l. What do you call the part of line l from A to B, including both endpoints?	line segment AB
4	Lines r and s are in the same plane. Line r has equation $y = -4x + 1$, and line s has equation $y = 1/4x - 6$. Are the lines parallel, perpendicular, or neither?	perpendicular
5	The distinct lines p and q have equations $y = 3x - 2$ and $y = 3x + 5$. Are the lines parallel, perpendicular, or neither?	parallel
6	A circle has center C and circumference 36 cm. Minor arc AB is formed by a central angle of 120° . What is the length of minor arc AB?	12 cm

PART 2 • APPLY IT

- Yes. The paths are perpendicular.** The slopes are 1 and -1. Their product is -1, so the lines are perpendicular and meet at a right angle.
- 14pi cm** The circle's circumference is 42pi cm. A 120° arc is $1/3$ of the circle, so its length is 14pi cm.

CHALLENGE

Lines a and b are perpendicular, lines b and c are perpendicular, and lines a and c are parallel. Lines a and c have the same slope but different y-intercepts, so they are distinct parallel lines.

Accept answers that name the correct relationship without repeating the word "lines." For the challenge, accept an equivalent explanation that equal slopes and different y-intercepts make lines a and c distinct parallel lines.