LESSON MAKER PRO

Circle Angle Hunt

Connect angles that intercept the same arc.

HIGH SCHOOL · GDA.GM.J.37

GDA.GM.J.37 "Investigate and apply relationships among inscribed angles, radii, and chords, including but not limited to: the relationship between central, inscribed, and circumscribed angles; inscribed angles on a diameter are right angles..."

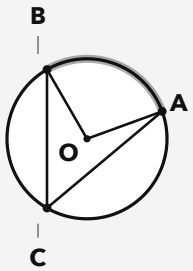
NAME _____ **DATE** _____

THE ANGLE RULE

A central angle is twice an inscribed angle that intercepts the same arc. To find the inscribed angle, divide the central angle by 2.

WORKED EXAMPLE

In the figure, $m\angle AOB = 100°$. Find $m\angle ACB$.



1. Both angles intercept arc AB.
2. $m\angle ACB = 100° / 2 = 50°$.

Answer: 50°

PRACTICE 4 problems

1 A central angle is 128°. Find an inscribed angle intercepting the same arc.

ANSWER _____

2 An inscribed angle is 43°. Find the central angle intercepting the same arc.

ANSWER _____

3 An inscribed angle intercepts a 154° arc. What is its measure?

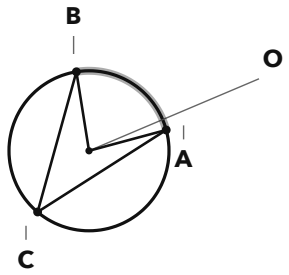
ANSWER _____

4 A central angle measures (3x + 20)°. An inscribed angle intercepting the same arc measures (x + 25)°. Find x.

ANSWER _____

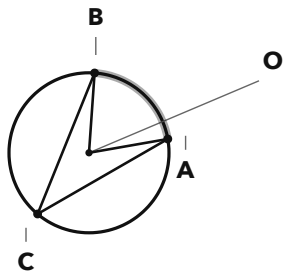
APPLY IT Show your work

1 At a circular skate park, a camera at C points toward A and B. If m∠AOB = 84°, what angle does the camera's view make?



ANSWER _____

2 On a circular concert stage, a camera at C sees spotlights at A and B at an angle of 38°. What angle do radii OA and OB form?



ANSWER _____

CHALLENGE One step up

An inscribed angle measures (2x + 9)°. The central angle intercepting the same arc measures (5x - 3)°. Find x and both angle measures.

WORK SPACE AND ANSWER

ANSWER KEY

Circle Angle Hunt

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PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	A central angle is 128°. Find an inscribed angle intercepting the same arc.	**64°**
2	An inscribed angle is 43°. Find the central angle intercepting the same arc.	**86°**
3	An inscribed angle intercepts a 154° arc. What is its measure?	**77°**
4	A central angle measures (3x + 20)°. An inscribed angle intercepting the same arc measures (x + 25)°. Find x.	**30**

PART 2 · APPLY IT

1. **42°** The camera's angle is inscribed and intercepts the same arc as ∠AOB, so its measure is 84° / 2 = 42°.
2. **76°** The angle between the radii is central and intercepts the same arc as the camera's angle, so it measures 2 × 38° = 76°.

CHALLENGE

x = 21; inscribed angle = 51°; central angle = 102°

For the challenge, accept the two angle measures in either order if they are clearly identified.