LESSON MAKER PRO

Angle Detective

Use quadrilateral properties to uncover missing angles.

GRADE 7 · 7.MG.3.c

7.MG.3.c "Given a diagram, determine an unknown angle measure in a quadrilateral, using properties of quadrilaterals."

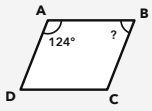
NAME _____ DATE _____

QUADRILATERAL ANGLE RULES

The interior angles in every quadrilateral add to 360°. In a parallelogram, opposite angles are equal and consecutive angles add to 180°; in a trapezoid, angles on the same leg add to 180° when the bases are parallel.

WORKED EXAMPLE

Find angle B in the parallelogram shown.

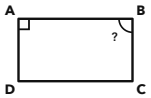


1. Consecutive angles in a parallelogram add to 180°.
2. angle A + angle B = 180°
3. 124° + angle B = 180°, so angle B = 56°.

Answer: angle B = 56°

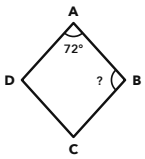
PRACTICE 6 problems

1 Find angle B in the rectangle shown.



ANSWER _____

2 Find angle B in the rhombus shown.



ANSWER _____

3 A parallelogram has angle A = 135°. Find angle C.

ANSWER _____

4 In trapezoid ABCD, AB is parallel to CD. If angle A = 68°, find angle D.

ANSWER _____

5 A quadrilateral has interior angles of 83°, 97°, 110°, and x°. Find x.

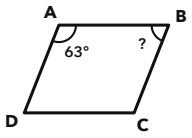
ANSWER _____

6 In kite ABCD, AB = AD and CB = CD, so angles B and D are equal. If angle A = 88° and angle B = 105°, find angle C.

ANSWER _____

APPLY IT Show your work

1 A game club's badge is shaped like the parallelogram shown. What is angle B?



ANSWER _____

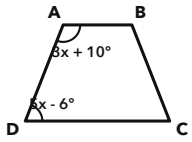
2 A skateboard park has a four-sided painted boundary. Three interior corner angles are 96°, 104°, and 73°. What is the fourth interior angle?

WORK SPACE

ANSWER _____

CHALLENGE One step up

In the trapezoid shown, bases AB and CD are parallel. Find x, angle A, and angle D. Explain why angles A and D add to 180°.



WORK SPACE AND ANSWER

ANSWER KEY

Angle Detective

GRADE 7 · 7.MG.3.c

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Find angle B in the rectangle shown.	**90°**
2	Find angle B in the rhombus shown.	**108°**
3	A parallelogram has angle A = 135°. Find angle C.	**135°**
4	In trapezoid ABCD, AB is parallel to CD. If angle A = 68°, find angle D.	**112°**
5	A quadrilateral has interior angles of 83°, 97°, 110°, and x°. Find x.	**70°**
6	In kite ABCD, AB = AD and CB = CD, so angles B and D are equal. If angle A = 88° and angle B = 105°, find angle C.	**62°**

PART 2 · APPLY IT

1. **117°** Angles A and B are consecutive angles in a parallelogram, so they add to 180°. Subtract 63° from 180°.
2. **87°** The interior angles of a quadrilateral total 360°. Subtract 96°, 104°, and 73° from 360°.

CHALLENGE

x = 22, angle A = 76°, and angle D = 104°. Angles A and D are supplementary because they are on the same leg between parallel bases.

Accept equivalent equation work and angle measures written with or without the degree symbol. For the challenge, accept any clear explanation that same-leg interior angles formed by parallel bases are supplementary.