LESSON MAKER PRO

Triangle Angle Clues

Use angle sums to find what is missing.

GRADE 8 · 8.GR.A.3

8.GR.A.3 "Use informal arguments to verify that the sum of the interior angles of a triangle is 180 degrees and why an exterior angle equals the sum of the two remote interior angles."

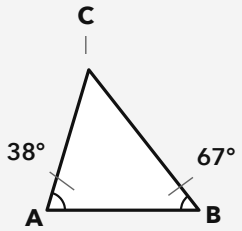
NAME _____ DATE _____

THE ANGLE RULES

A triangle's three interior angles add to 180°. An exterior angle and the interior angle beside it make a straight angle, so the exterior angle equals the sum of the other two interior angles.

WORKED EXAMPLE

Find the exterior angle at C.



1. Interior angle C = 180° - (38° + 67°) = 75°.
2. Exterior angle C = 180° - 75° = 105°.
3. Check: 38° + 67° = 105°.

Answer: 105°

PRACTICE 4 problems

1 Two interior angles of a triangle are 43° and 72°. Find the third angle.

ANSWER _____

2 Two remote interior angles are 29° and 64°. Find their exterior angle.

ANSWER _____

3 An exterior angle is 124°. One remote interior angle is 56°. Find the other.

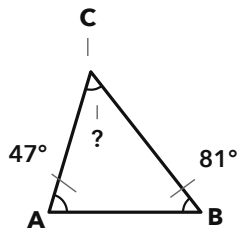
ANSWER _____

4 An exterior angle is 2x + 27 degrees. Its remote interior angles are x + 24 degrees and 61°. Find x.

ANSWER _____

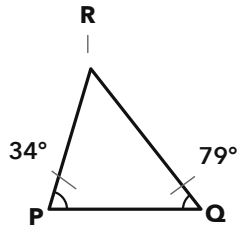
APPLY IT Show your work

1 Three paths meet around a triangular skate park. Find the angle at C.



ANSWER _____

2 A bike-course shortcut forms the triangle shown. Find the exterior angle at R.



ANSWER _____

CHALLENGE One step up

An exterior angle is 5x + 8 degrees. Its remote interior angles are 2x + 21 degrees and x + 31 degrees. Find x and explain your equation.

WORK SPACE AND ANSWER

ANSWER KEY

Triangle Angle Clues

GRADE 8 · 8.GR.A.3

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Two interior angles of a triangle are 43° and 72°. Find the third angle.	**65°**
2	Two remote interior angles are 29° and 64°. Find their exterior angle.	**93°**
3	An exterior angle is 124°. One remote interior angle is 56°. Find the other.	**68°**
4	An exterior angle is 2x + 27 degrees. Its remote interior angles are x + 24 degrees and 61°. Find x.	**x = 58**

PART 2 · APPLY IT

1. **52°** Subtract the two given interior angles from 180°: 180° - 47° - 81° = 52°.
2. **113°** Add the remote interior angles: 34° + 79° = 113°.

CHALLENGE

x = 22. The exterior angle equals the sum of the remote interior angles, so 5x + 8 = (2x + 21) + (x + 31).

Accept a straight-angle calculation in place of adding remote interior angles. For the challenge, accept any equivalent equation with a correct explanation.