LESSON MAKER PRO

Triangle Angle Hunt

Use interior and exterior angle relationships.

GRADE 8 · MA.8.GR.1.5

MA.8.GR.1.5 "Solve problems involving the relationships of interior and exterior angles of a triangle."

NAME _____ DATE _____

ANGLE RULES

The three interior angles of a triangle add to 180 degrees. An exterior angle and its adjacent interior angle add to 180 degrees, and an exterior angle equals the two remote interior angles added together.

WORKED EXAMPLE

A triangle has interior angles of 41 degrees and 57 degrees. Find the third angle.

1. 41 + 57 = 98
2. 180 - 98 = 82

Answer: 82 degrees

PRACTICE 5 problems

1 A triangle has angles of 39 degrees, 74 degrees, and x degrees. Find x.

ANSWER _____

2 An exterior angle is 121 degrees. One remote interior angle is 53 degrees. Find the other remote interior angle.

ANSWER _____

3 An exterior angle is 143 degrees. Find its adjacent interior angle.

ANSWER _____

4 A triangle's angles are 2x + 10 degrees, 3x + 5 degrees, and 75 degrees. Find x.

ANSWER _____

5 An exterior angle is 4x + 7 degrees. Its remote interior angles are 49 degrees and 62 degrees. Find x.

ANSWER _____

APPLY IT Show your work

1 At a concert, two support cables and the ground form a triangle. The two remote interior angles are 44 degrees and 71 degrees. What is the exterior angle at the ground?

WORK SPACE

ANSWER _____

2 A skate park sign has a triangular frame. An exterior angle is 134 degrees, and one remote interior angle is 58 degrees. Find the other remote interior angle.

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

A triangle has remote interior angles of x + 22 degrees and 2x + 14 degrees. The exterior angle at the third vertex is 4x + 18 degrees. Find x and all three interior angles.

_____

_____

ANSWER KEY

Triangle Angle Hunt

GRADE 8 · MA.8.GR.1.5

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	A triangle has angles of 39 degrees, 74 degrees, and x degrees. Find x.	**67 degrees**
2	An exterior angle is 121 degrees. One remote interior angle is 53 degrees. Find the other remote interior angle.	**68 degrees**
3	An exterior angle is 143 degrees. Find its adjacent interior angle.	**37 degrees**
4	A triangle's angles are 2x + 10 degrees, 3x + 5 degrees, and 75 degrees. Find x.	**x = 18**
5	An exterior angle is 4x + 7 degrees. Its remote interior angles are 49 degrees and 62 degrees. Find x.	**x = 26**

PART 2 · APPLY IT

1. **115 degrees** Add the remote interior angles: 44 + 71 = 115.
2. **76 degrees** Subtract the known remote angle from the exterior angle: 134 - 58 = 76.

CHALLENGE

x = 18; interior angles are 40 degrees, 50 degrees, and 90 degrees

Accept correct equations and degree labels. For the challenge, accept the interior angles in any order.