LESSON MAKER PRO

Triangle Angle Hunt

Use angle relationships to solve and explain.

HIGH SCHOOL · G.CO.10

G.CO.10 "Prove theorems about triangles. Theorems include: measures of interior angles of a triangle sum to 180 degrees; base angles of isosceles triangles are congruent..."

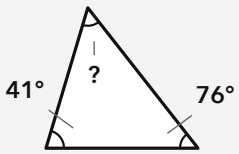
NAME _____ DATE _____

ANGLE RULES

The three interior angles of a triangle add to 180°. If two sides of a triangle are congruent, the angles opposite those sides are congruent.

WORKED EXAMPLE

Find the missing angle in the figure.

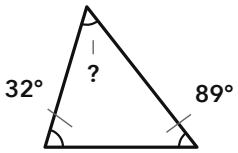


1. Add the known angles: 41 + 76 = 117.
2. Subtract from 180: 180 - 117 = 63.

Answer: 63°

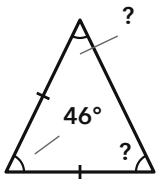
PRACTICE 6 problems

1 Find the missing angle in the figure.



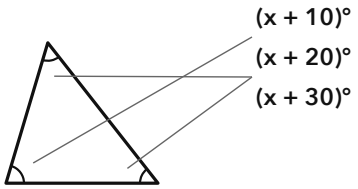
ANSWER _____

2 Use the side marks to find the measure of each base angle.



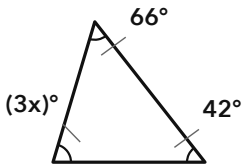
ANSWER _____

3 Find x.



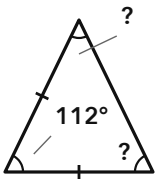
ANSWER _____

4 Find x.



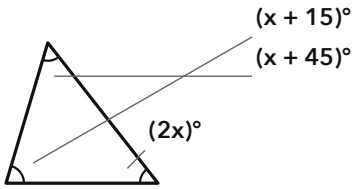
ANSWER _____

5 Find the measure of each base angle.



ANSWER _____

6 Find x and the measure of the largest angle.

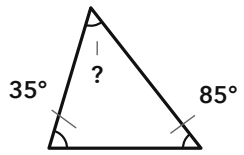


ANSWER _____

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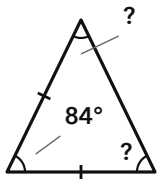
APPLY IT Show your work

1 A student group is designing the triangular graphic shown for a concert poster. Find its missing angle.



ANSWER _____

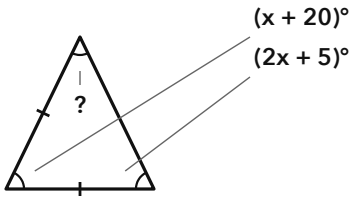
2 A game designer is making the triangular badge shown. Find the measure of each base angle.



ANSWER _____

CHALLENGE One step up

Use the side marks to find x and all three angle measures. Explain why the two base angles have equal measures.



WORK SPACE AND ANSWER

ANSWER KEY # Triangle Angle Hunt

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Find the missing angle in the figure.	**59°**
2	Use the side marks to find the measure of each base angle.	**67° each**
3	Find x.	**x = 40**
4	Find x.	**x = 24**
5	Find the measure of each base angle.	**34° each**
6	Find x and the measure of the largest angle.	**x = 30; largest angle = 75°**

PART 2 · APPLY IT

1. **60°** The missing angle is 180° - 35° - 85° = 60°.
2. **48° each** The base angles are congruent. Each measures (180° - 84°)/2 = 48°.

CHALLENGE

x = 30; the angles are 50°, 65°, and 65°. The marked sides are congruent, so the base angles are congruent. Thus, (x + 20) + 2(2x + 5) = 180.

Accept equivalent equations and explanations that use the triangle angle sum. For isosceles triangles, accept a statement that the base angles are equal because the marked sides are congruent.