LESSON MAKER PRO

Angle Claims

Calculate and justify. Figures are not to scale.

HIGH SCHOOL · GDA.GM.H.31

GDA.GM.H.31 "Justify whether conjectures are true or false in order to prove theorems and then apply those theorems in solving problems, communicating proofs in a variety of ways, including flow chart, two-column, and paragraph formats. a. Investigate..."

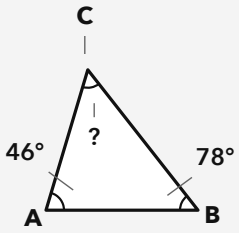
NAME _____ DATE _____

TWO TRIANGLE FACTS

The interior angles of a triangle add to 180°. In an isosceles triangle, the angles opposite the marked equal sides are equal. Use these facts to write an equation or check a claim.

WORKED EXAMPLE

Find the angle marked ? in the figure.

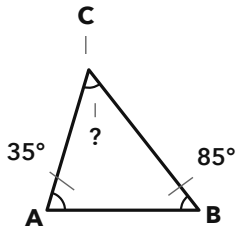


1. The three angles add to 180°.
2. 46 + 78 = 124.
3. 180 - 124 = 56.

Answer: 56°

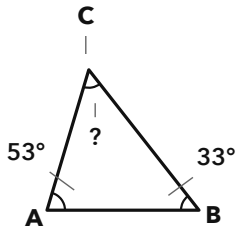
PRACTICE 6 problems

1 Find the angle marked ?.



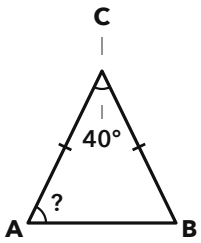
ANSWER _____

2 Find the angle marked ?.



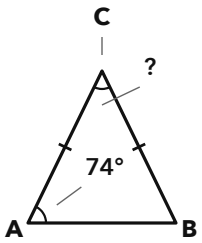
ANSWER _____

3 Find the angle marked ?.



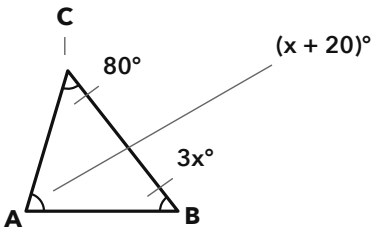
ANSWER _____

4 Find the angle marked ?.



ANSWER _____

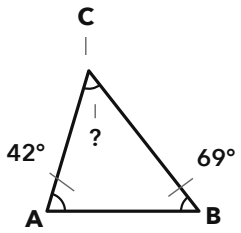
5 Find x. Write the equation you used.



ANSWER _____

_____

6 Someone claims the angle marked ? equals the 69° angle. Is the claim true? Calculate ? and explain.

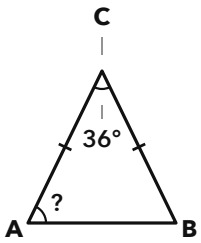


ANSWER _____

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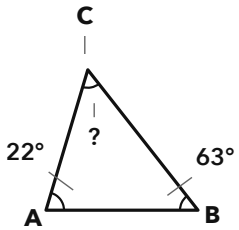
APPLY IT Show your work

1 A concert stage has an isosceles triangular light frame. Find the angle marked ? on the frame.



ANSWER _____

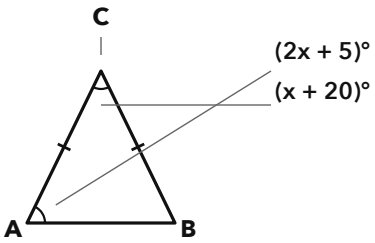
2 The triangular support under a bike-park ramp has the angles shown. Find the angle marked ?.



ANSWER _____

CHALLENGE One step up

A student claims the angle at C is 50°. Is the claim true? Find x and use it to justify your answer.



WORK SPACE AND ANSWER

ANSWER KEY

Angle Claims

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Find the angle marked ?.	**60°**
2	Find the angle marked ?.	**94°**
3	Find the angle marked ?.	**70°**
4	Find the angle marked ?.	**32°**
5	Find x. Write the equation you used.	**x = 20; (x + 20) + 3x + 80 = 180.**
6	Someone claims the angle marked ? equals the 69° angle. Is the claim true? Calculate ? and explain.	**True. The missing angle is 180° - 42° - 69° = 69°.**

PART 2 · APPLY IT

1. **72°** The two base angles are equal. Each is (180° - 36°)/2 = 72°.
2. **95°** Subtract the two known angles from 180°: 180° - 22° - 63° = 95°.

CHALLENGE

True. The base angles are equal, so 2(2x + 5) + (x + 20) = 180. Thus 5x + 30 = 180, x = 30, and angle C is 30° + 20° = 50°.

Accept equivalent equations and explanations that use the triangle angle sum. For isosceles figures, sides BC and CA are marked equal, so angles A and B are equal.