LESSON MAKER PRO

Triangle Angle Detective

Use angle rules to find missing measures.

HIGH SCHOOL · GDA.GM.H.31.b

GDA.GM.H.31.b "Investigate, prove, and apply theorems about triangles, including but not limited to: the sum of the measures of the interior angles of a triangle is 180˚; the base angles of isosceles triangles are congruent..."

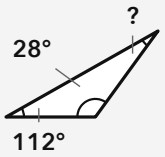
NAME _____ DATE _____

TWO ANGLE RULES

The interior angles of any triangle add to 180°. In an isosceles triangle, the angles opposite the equal sides have the same measure. Use both facts when a triangle has two equal sides.

WORKED EXAMPLE

Find the missing angle in the triangle.

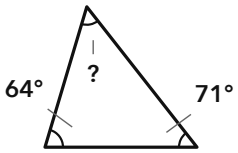


1. Add the known angles: 112° + 28° = 140°.
2. Subtract from 180°: 180° - 140° = 40°.

Answer: 40°

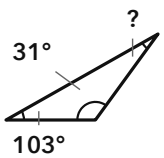
PRACTICE 6 problems

1 Find the missing angle.



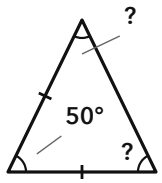
ANSWER _____

2 Find the missing angle.



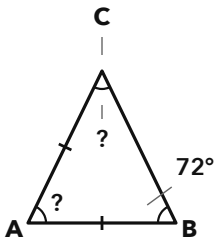
ANSWER _____

3 Find the measure of each base angle.



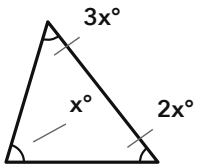
ANSWER _____

4 Find the angle at vertex A.



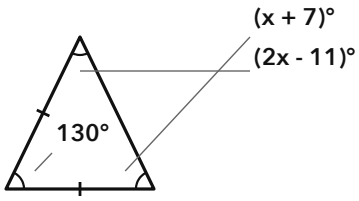
ANSWER _____

5 Find x.



ANSWER _____

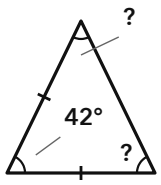
6 Find x.



ANSWER _____

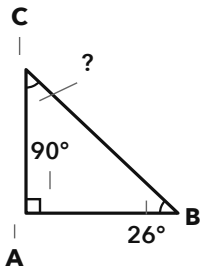
APPLY IT Show your work

1 A designer is making an isosceles icon for a game menu. What is the measure of each base angle in the icon?



ANSWER _____

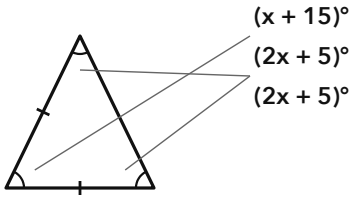
2 The figure shows a side view of a skateboard ramp. What is the angle between the ramp surface and the vertical support?



ANSWER _____

CHALLENGE One step up

Find x and all three angle measures. Explain how the equal sides help you.



WORK SPACE AND ANSWER

ANSWER KEY

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PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Find the missing angle.	**45°**
2	Find the missing angle.	**46°**
3	Find the measure of each base angle.	**65° each**
4	Find the angle at vertex A.	**36°**
5	Find x.	**x = 30**
6	Find x.	**x = 18**

PART 2 · APPLY IT

1. **69° each** The base angles are equal. Each measures (180° - 42°)/2 = 69°.
2. **64°** Subtract the two known angles from 180°: 180° - 90° - 26° = 64°.

CHALLENGE

x = 31. The angles are 46°, 67°, and 67°. The equal sides make the two base angles equal, so (x + 15) + 2(2x + 5) = 180.

Accept equivalent equations for the challenge. In problems 5 and 6, x is a number, not an angle measure.