

Date: _____

Name: _____

Angles, Angles, Angles!

How many angles does a rectangle have?

A: _____



If each angle is 90 degrees, how many total degrees does a rectangle have?

A: _____

If you cut a rectangle in half to make a triangle, how many degrees does a triangle have?

A: _____

How many degrees would an equilateral triangle have?

A: _____

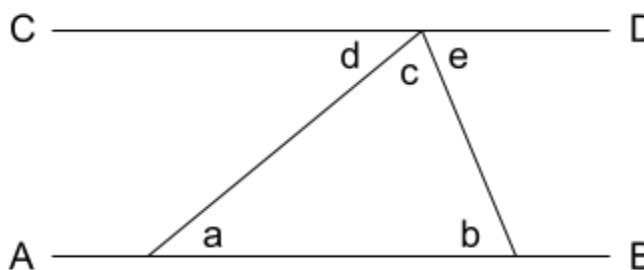
How many degrees does any triangle have?

A: _____

Here is a visual proof to help your understanding. Given the following information, can you prove that

$$a + b + c = 180^\circ?$$

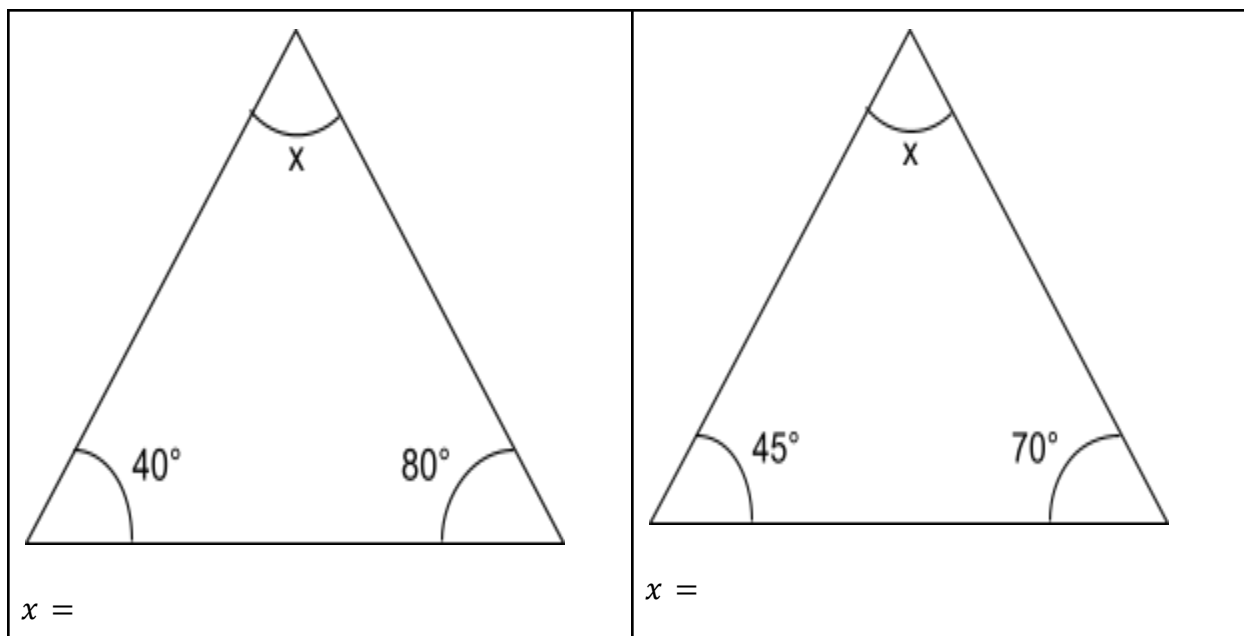
- Lines AB and CD are parallel
- $a = d$
- $b = e$



Great job, you have proved the Angle Sum Theorem! On the next page are a few practice problems to follow along with as the teachers show them. *triangles not drawn to scale*

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Here are some conceptual problems to solve with the teachers:

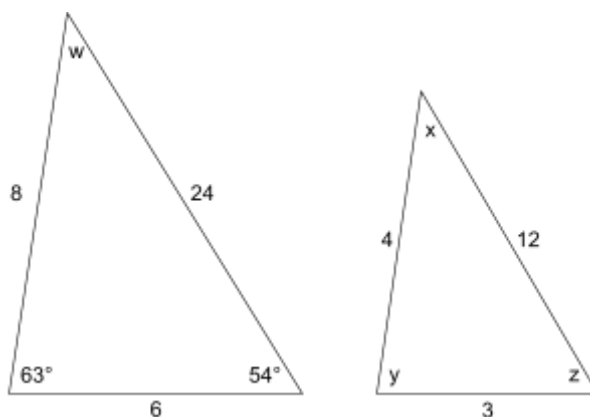
Find all angles of the triangles at right.

$w =$

$x =$

$y =$

$z =$



Malli thinks to herself, “if 5 equilateral triangles make a pentagon, and one triangle has 180° then that means a pentagon must have 900° !” Is she correct? (Draw a picture)

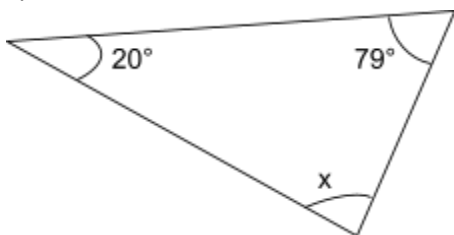
Now, it’s your turn! Use the Angle Sum Theorem to find angles in the triangles below.

triangles not drawn to scale

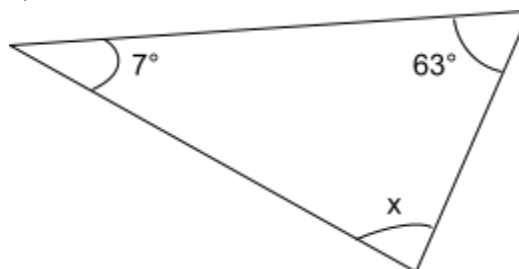
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1.

 $x =$

2.

 $x =$

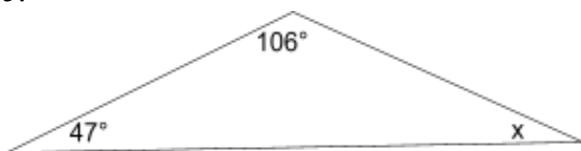
3.

 $x =$

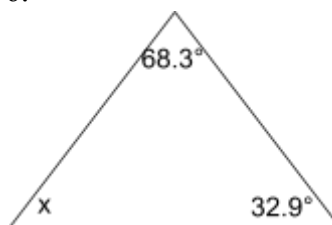
4.

 $x =$

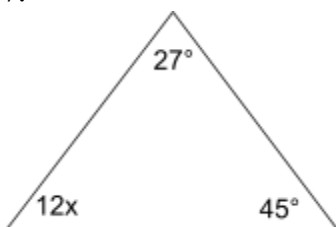
5.

 $x =$

6.

 $x =$

7.

 $x =$

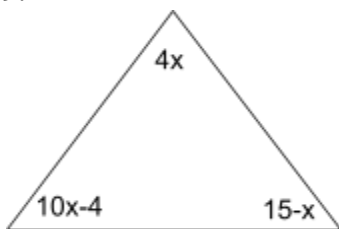
8.

 $x =$

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9.

 $x =$

10.

 $x =$

11.

 $x =$

12.

 $x =$

13. If Rohan raises his arms at 70° and Lucas raises his arms at 35° , at how many degrees must Arav place his hands to form a triangle?

14. Elijah and Daniel are trying to make a triangle. If one angle is 82.7 degrees, and the other angle is 14.06 degrees, how many degrees should the last angle be?

Bonus:

A triangle has angles A, B, and C. If angle C is four times as large as angle B, and angle A is 6 degrees less than angle B, how many degrees is each angle?