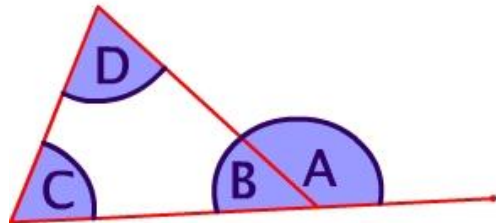


Relationship between Exterior and Remote Interior Angles in a Triangle



$\angle A =$ exterior angle

$\angle C =$ remote interior angle

$\angle D =$ remote interior angle

exterior angle = sum of the remote interior angles

$$\angle A = \angle C + \angle D$$

URL on Remote, Exterior and Interior Angles of A Triangle

<http://www.mathwarehouse.com/geometry/triangles/angles/remote-exterior-and-interior-angles-of-a-triangle.php>

© www.mathwarehouse.com

All Rights Reserved

Commercial Use Prohibited

TEACHERS: Feel free to make copies of this worksheet for the sole purpose of use in your own classroom. ENJOY!!! Redistribution in any other form is prohibited.

More Free Math Printable Worksheets at

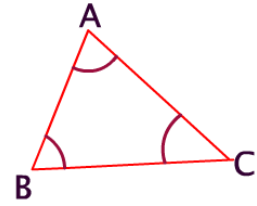
<http://www.mathwarehouse.com/classroom/worksheets-and-activities.php>

Play Math Games at TheMathGames.com

Warm Up→

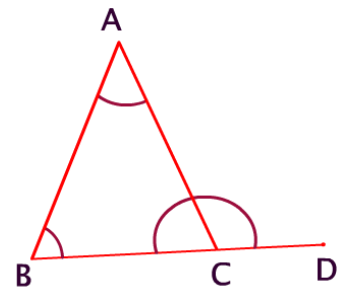
1) $m\angle ABC = 80^\circ$ $m\angle BCA = 50^\circ$, what is $m\angle CAB$?

2) The sum of the interior angles of a triangle is _____

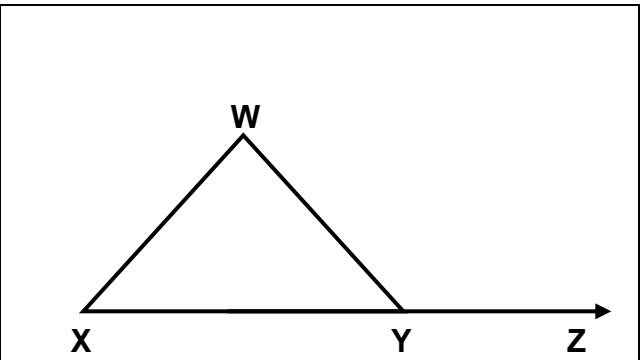
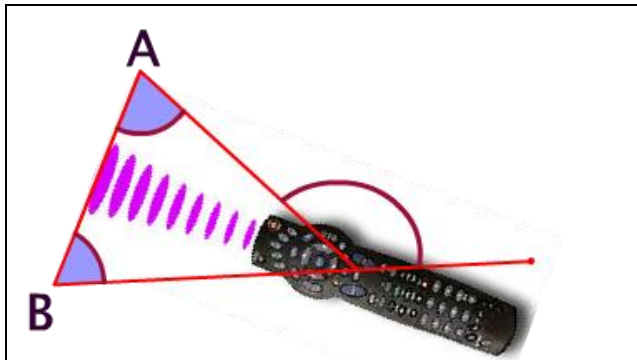


An exterior angle of a triangle is formed by extending any one side.

Name the exterior angle.



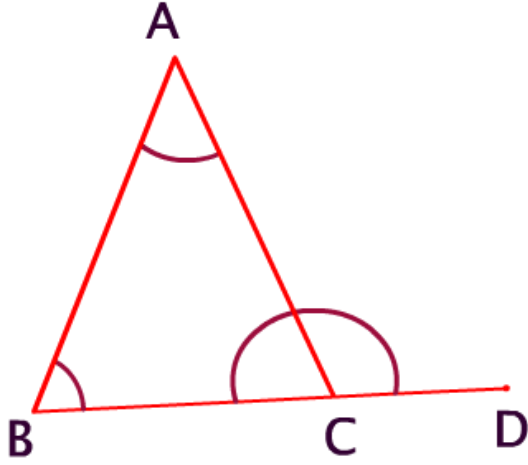
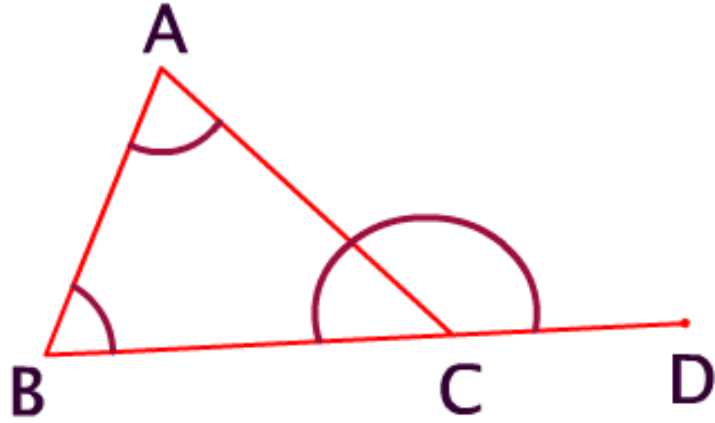
Name the remote interior angles

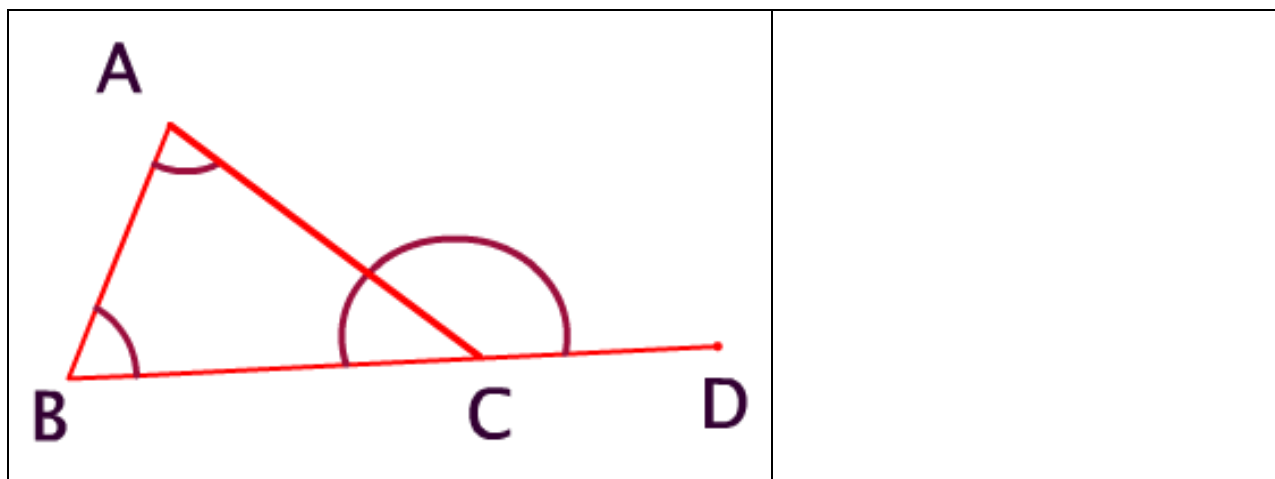


Exploration:

What is the relationship between an exterior angle the interior angles?

Use a compass to help you fill out the chart below. Pencil in the measure of each angle in the chart below

 <p>A triangle with vertices A, B, and C. The interior angles at vertices A, B, and C are marked with arcs. The base BC is extended to point D, forming an exterior angle ACD, which is also marked with an arc.</p>	<p>#1</p> <p>$m\angle BCA =$ $m\angle B =$ $m\angle A =$ $m\angle B + m\angle A =$ $m\angle ACD =$</p>
 <p>A triangle with vertices A, B, and C. The interior angles at vertices A, B, and C are marked with arcs. The base BC is extended to point D, forming an exterior angle ACD, which is also marked with an arc.</p>	<p>#2</p> <p>$m\angle BCA =$ $m\angle B =$ $m\angle A =$ $m\angle B + m\angle A =$ $m\angle ACD =$</p>
	<p>#3</p> <p>$m\angle BCA =$ $m\angle B =$ $m\angle A =$ $m\angle B + m\angle A =$ $m\angle ACD =$</p>



Looking at #'s 1—3, do you see a pattern emerging?

#4

$m\angle BCA =$
 $m\angle B =$
 $m\angle A =$
 $m\angle B + m\angle A =$
 $m\angle ACD =$

#5

$m\angle BCA =$
 $m\angle B =$
 $m\angle A =$
 $m\angle B + m\angle A =$
 $m\angle ACD =$

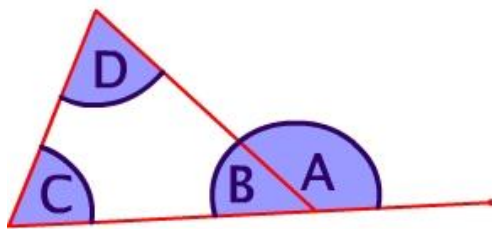
#6

$m\angle BCA =$
 $m\angle B =$

	$m\angle A =$ $m\angle B + m\angle A =$ $m\angle ACD =$
--	---

Explain what is happening. Do you see a pattern in the data ? If so explain:

The Formula



$\angle A =$ exterior angle

$\angle C =$ remote interior angle

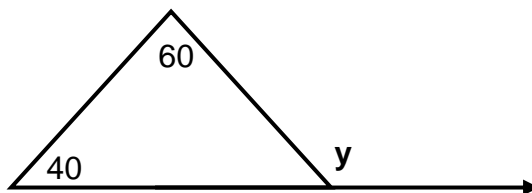
$\angle D =$ remote interior angle

exterior angle = sum of the remote interior angles

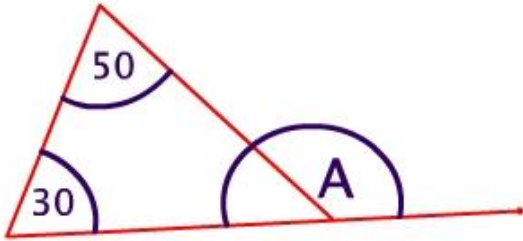
$$\angle A = \angle C + \angle D$$

Practice Problems. Solve for the variables.

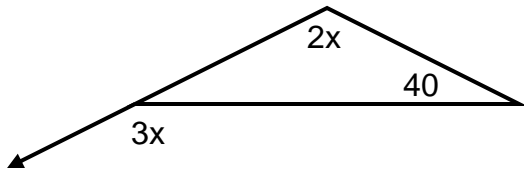
1) Solve for y .



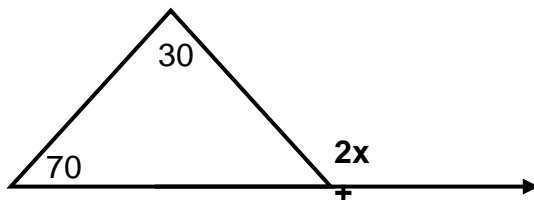
2)



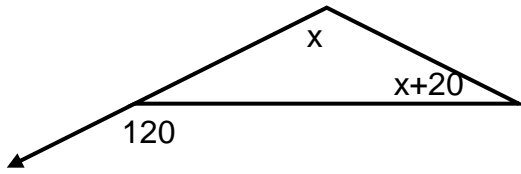
3) Solve for x .



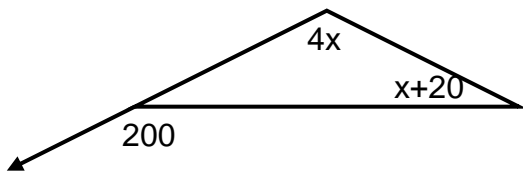
4)



5) Determine the value of x



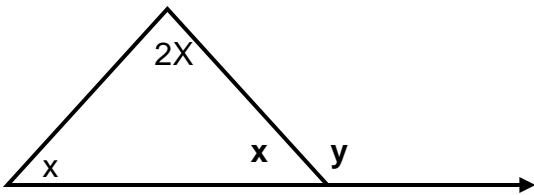
6)



7) In triangle ABC, $m\angle C = 80$, $m\angle B = 2x$ and the measure of an exterior angle at A is $4x$. Draw a sketch and find x .

8) In triangle ABC, $m\angle C = 40$, $m\angle B = x$ and the measure of an exterior angle at A is $2x$. Draw a sketch and find x .

9) Challenge Problem (determine the value of x and of y)



Relationship between Exterior and Remote Interior Angles in a Triangle

URL on Remote, Exterior and Interior Angles of A Triangle

<http://www.mathwarehouse.com/geometry/triangles/angles/remote-exterior-and-interior-angles-of-a-triangle.php>

© www.mathwarehouse.com

All Rights Reserved

Commercial Use Prohibited

TEACHERS: Feel free to make copies of this worksheet for the sole purpose of use in your own classroom. ENJOY!!! Redistribution in any other form is prohibited.

More Free Math Printable Worksheets at

<http://www.mathwarehouse.com/classroom/worksheets-and-activities.php>

Play Math Games at TheMathGames.com