Do Now:
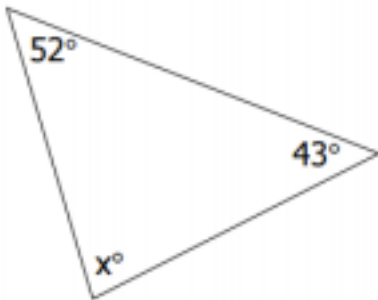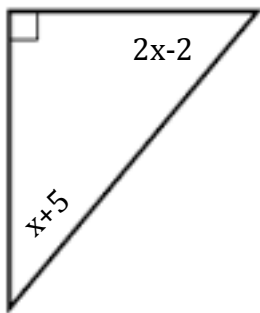
In each diagram, determine the value of x.

1.

2.

Now that we have practiced with finding angle measures within a triangle, let's talk about how we classify triangles. There are different ways that we can classify triangles based off of their _____.

acute, obtuse, right, scalene, isosceles, equilateral

Time to practice!

1.

In $\triangle ABC$, m<A=3x+1, m<B=4x-17 and m<C=5x-20. Which type of triangle is $\triangle ABC$?

2.

In right triangle ABC, $m\angle C = 3y - 10$, $m\angle B = y + 40$, and $m\angle A = 90$. What type of right triangle is triangle ABC?

1) scalene
2) isosceles
3) equilateral
4) obtuse

| Definition: | An exterior angle of a triangle is an angle formed by one side of the triangle and the extension of an adjacent side of the triangle. |

No

3 4

Exterior Angles
in a Triangle

1

MathBits.com

6

2

5

No

No
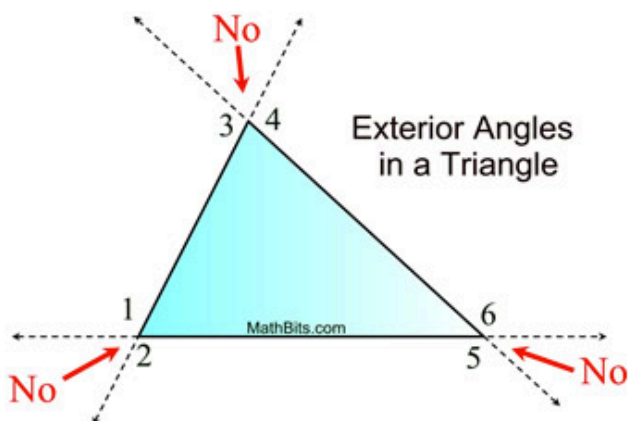
FACTS:
• Every triangle has 6 exterior angles, two at each vertex.
• Angles 1 through 6 are exterior angles.
• Notice that the "outside" angles that are "vertical" to the angles inside the triangle are NOT called exterior angles of a triangle.
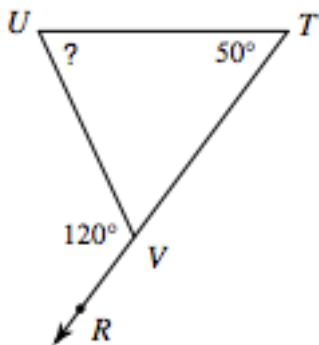
Now it's time for the...

THEOREM: The **measure of an exterior angle of a triangle** is equal to the sum of the measures of the two non-adjacent interior angles.
(Non-adjacent interior angles may also be referred to as remote interior angles.)

80°
100° 100°
80°
140°
120°
120° 60°
60°/120° 100°
MathBits.com
40° 140°
140° 40°

Exterior Angles
in a Triangle
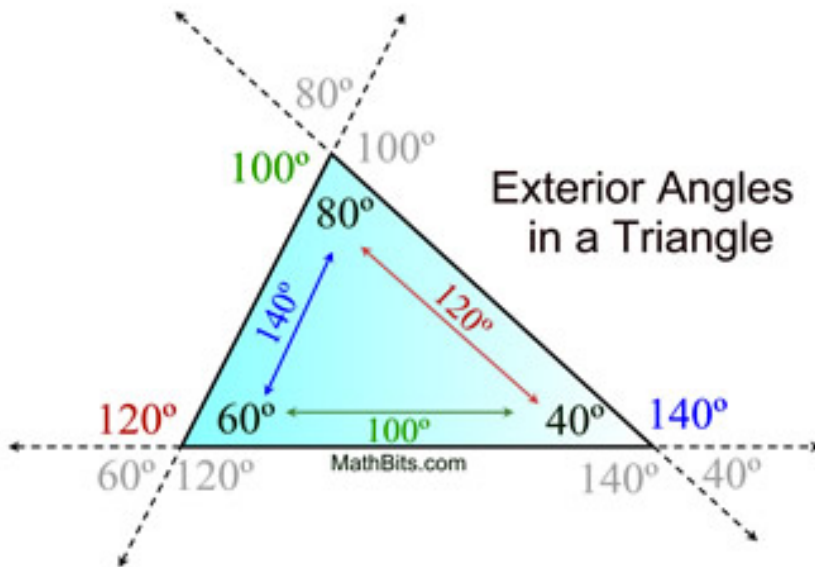
Practice: What is the missing angle?

U   T
?   50°
120°
V
R

What is the measure of Angle CBD?

C
$15x + 5$
120° $22x + 4$
A   D   B