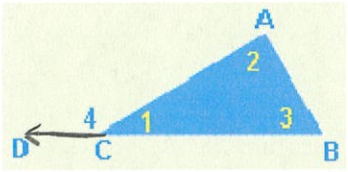
Name_____ Date_____

Mrs. Roumbos 8R period_____

Exterior Angles of a Triangle

An exterior angle of a triangle is equal in measure to the sum of the two non-adjacent interior angles of the triangle

In the triangle to the right, <4 is an exterior angle, because it is formed by a side of the triangle and an extension of another side.

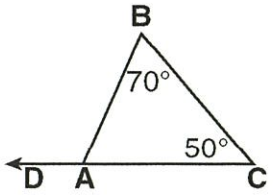


The theorem above states that because <4 is an exterior angle, its measure is equal to the sum of the measures of the 2 interior angles to which it is not adjacent, namely, <2 and <3.

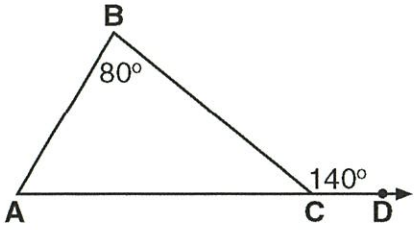
$m\angle 4 = m\angle 2 + m\angle 3$

I Examples

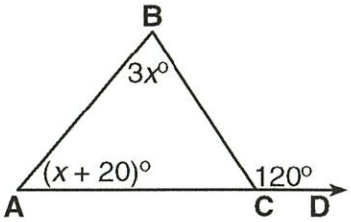
① In the accompanying diagram of $\triangle ABC$, $\overline{CA}$ is extended to D, $m\angle ABC = 70°$, and $m\angle BCA = 50°$. Find $m\angle DAB$.



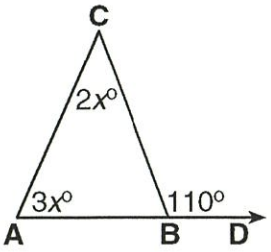
② In the accompanying diagram, $\overline{AC}$ is extended from C through D, $m\angle BCD = 140°$, and $m\angle B = 80°$. Find $m\angle BAC$.



③ In the accompanying diagram, $m\angle A = (x + 20)°$, $m\angle B = 3x°$, $\angle BCD$ is an exterior angle formed by extending $\overline{AC}$ to point D, and $m\angle BCD = 120°$. Find the value of x.



④ In the accompanying diagram, the measure of exterior angle CBD is 110°. If the measures of the two nonadjacent interior angles are represented by $3x°$ and $2x°$, find the value of x.



Use the Exterior Angles Theorem to find the measure of each angle in degrees.

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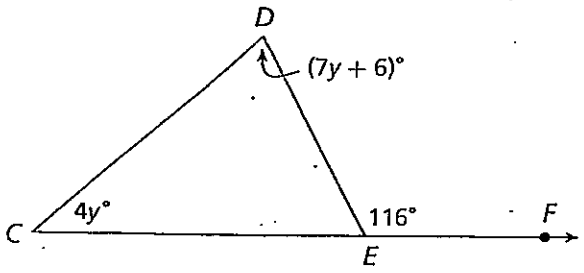

$m\angle C =$ _____

$m\angle D =$ _____

$m\angle DEC =$ _____

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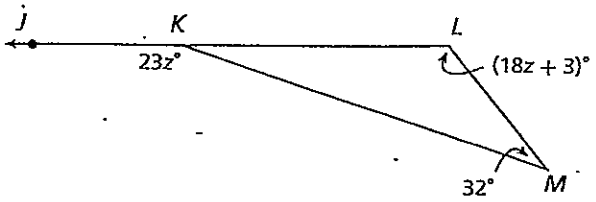

$m\angle L =$ _____

$m\angle MKL =$ _____

$m\angle MKJ =$ _____

More Practice: In each triangle below, solve for x

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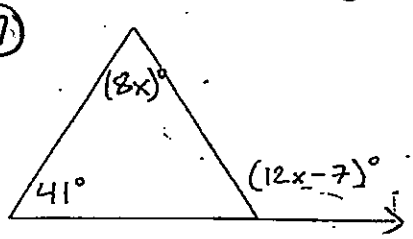

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