

Name: _____

Date: _____

UNIT 1B

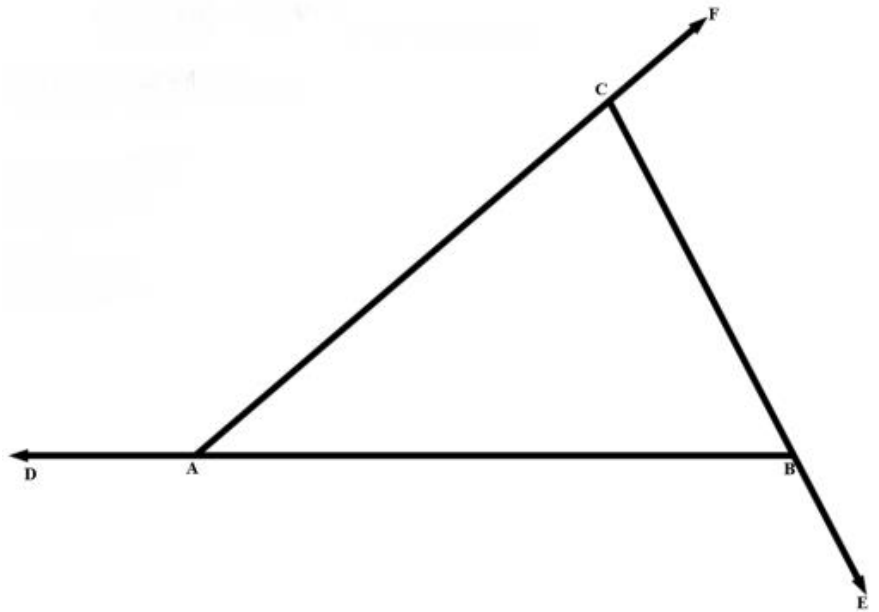
LESSON 13

AIM: WHAT IS THE EXTERIOR ANGLE OF A TRIANGLE THEOREM?

Do Now: The angles of a triangle can be represented by x , $2x + 2$ and $3x + 4$.

1. Find the value of x .

2. Find the measure of all **INTERIOR** angles of the triangle



3. Find the measure of all **EXTERIOR** angles of the triangle.

4. Look at the relationship between angles:

- $\angle CAD$ and $\angle ACB, \angle ABC$
- $\angle ABE$ and $\angle CAB, \angle BCA$
- $\angle BCF$ and $\angle CBA, \angle CAB$

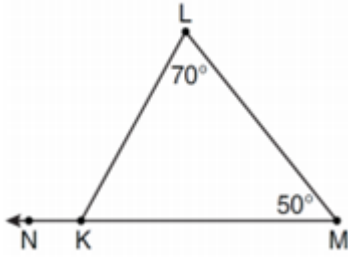
What do you notice?

EXTERIOR ANGLE THEOREM OF A TRIANGLE

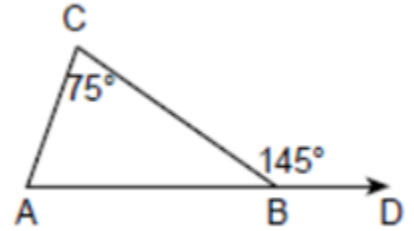
	<p>$m\angle 1 + m\angle 2 = m\angle 3$</p>
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EXAMPLES:

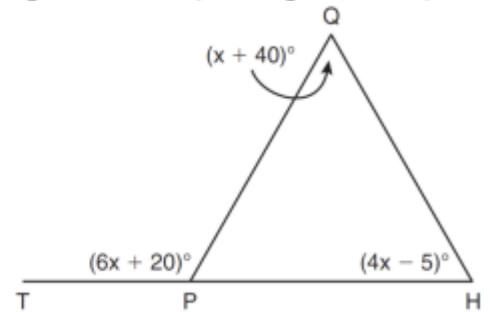
1. In the diagram of $\triangle KLM$ below, $m\angle L = 70^\circ$, $m\angle M = 50^\circ$, and \overline{MK} is extended through N. What is the measure of $\angle KLN$?



2. In the accompanying diagram of $\triangle ABC$, \overline{AB} is extended to D, exterior angle CBD measures 145° , and $m\angle C = 75^\circ$. What is the measure of $\angle CAB$?

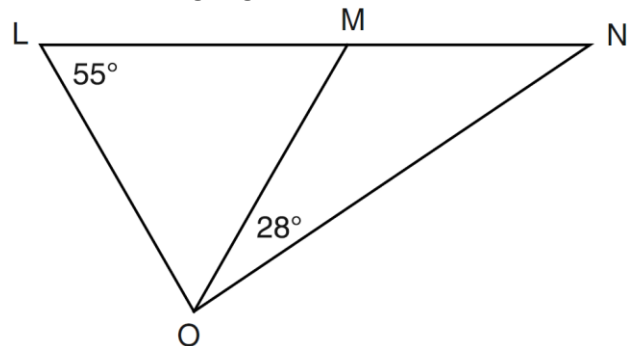


3. In the diagram below of $\triangle HQP$, side \overline{HP} is extended through P to T, $m\angle QPT = 6x + 20$, $m\angle HQP = x + 40$, and $m\angle PHQ = 4x - 5$. Find $m\angle QPT$.

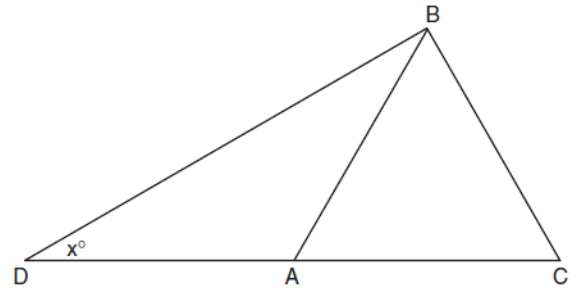


(Not drawn to scale)

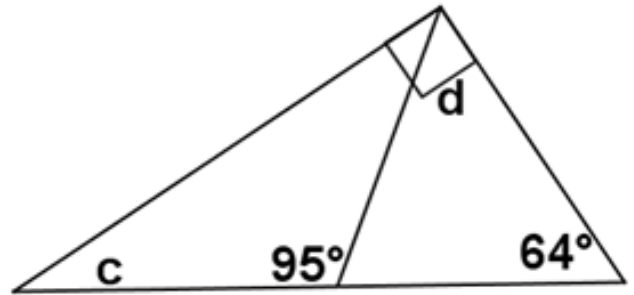
4. In the diagram below, $\triangle LMO$ is isosceles with $\overline{LO} \cong \overline{OM}$. Find each of the missing angles.



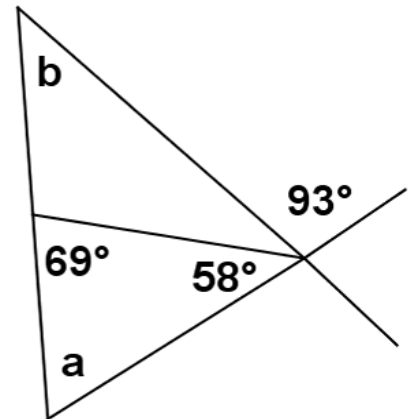
5. In the accompanying diagram of $\triangle BCD$, $\triangle ABC$ is an equilateral triangle and $AD = AB$. What is the value of x , in degrees?



6. In exercise below, find the unknown angles.



7. Find the measures of angles a and b in the figure to the right. Justify your results.



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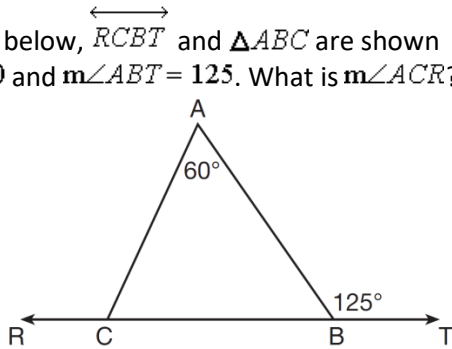
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UNIT 1B

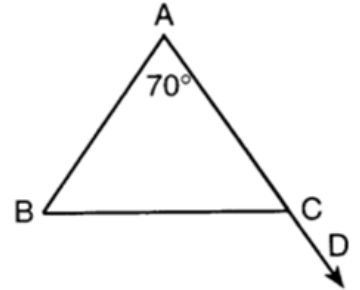
LESSON 13

HOMEWORK

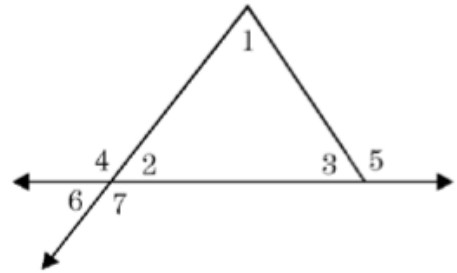
1. In the diagram below, $\overleftrightarrow{RCBT}$ and $\triangle ABC$ are shown with $m\angle A = 60$ and $m\angle ABT = 125$. What is $m\angle ACR$?



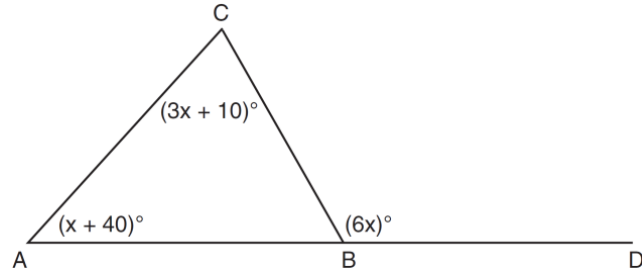
2. In the accompanying diagram of isosceles triangle BAC , vertex angle A measures 70° and \overline{AC} is extended to D . Find $m\angle BCD$.



3. In the diagram shown above, $m\angle 5 = 120$ and $m\angle 4 = 120$. Find $m\angle 1$.



4. In the diagram of $\triangle ABC$ below, \overline{AB} is extended to point D . If $m\angle CAB = x + 40$, $m\angle ACB = 3x + 10$, $m\angle CBD = 6x$, what is $m\angle CAB$?



5. Solve for $m\angle e =$

