Name:_____ Date:_____

Period:_____

Aim: What are some relationships between angles and sides of a triangle?

Do Now: If the measures of the angles of a triangle are represented by 2x, 3x-15 and 7x+15, the triangle is....

1) an isosceles triangle
2) a right triangle
3) an acute triangle
4) an equiangular triangle

$2x+3x-15+7x+15=180$

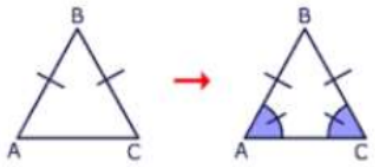
$12x=180$

$12 \quad 12$

$x=15$

30 30 120

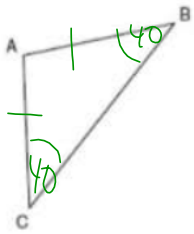
Isosceles Triangle Theorem



If 2 sides of a Δ are $\cong$, then the $\measuredangle$'s opposite those sides are $\cong$.

If 2 $\measuredangle$'s in a Δ are $\cong$, then the sides opposite those $\measuredangle$'s are $\cong$.

1. In the diagram of triangle ABC below, $\overline{AB} \cong \overline{AC}$. The measure of <B=40°. What is the measure of <A?

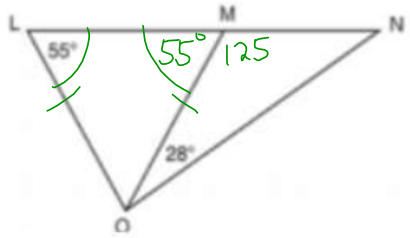


$40+40+\measuredangle A=180$

$80+\measuredangle A=180$

$\measuredangle A=100$

2. In the diagram below, ΔLMO is isosceles with $\overline{LO} \cong \overline{MO}$.



If m∠L = 55 and m∠NOM = 28, what is m∠N ?

$125+28+\measuredangle N=180$

$153+N=180$

$\measuredangle N=27$

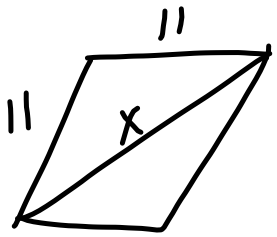
12) 5, 8, X

$3 < X < 13$

4, 5, 6, 7, 8, 9, 10, 11, 12

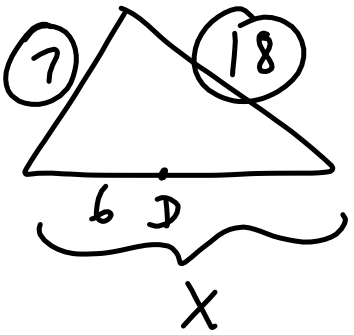
(9)

14)



$0 < X < 22$

1) (24)



$x=12$

$11 < x < 25$

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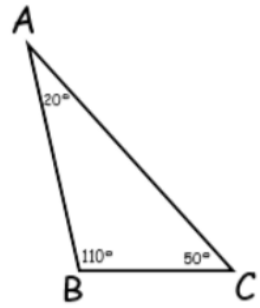


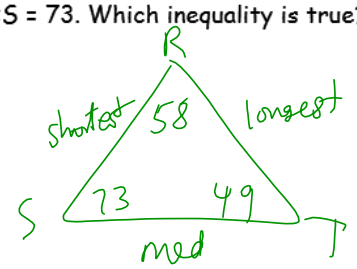
Angle Side Relationship

In a Δ, the longest side is opposite the largest ∠, the shortest side is opposite the smallest ∠.

1. In ΔRST, m<R = 58 and m<S = 73. Which inequality is true?

A) RT < TS < RS
B) RS < RT < TS
C) RT < RS < TS
D) RS < TS < RT

1
58
73
131



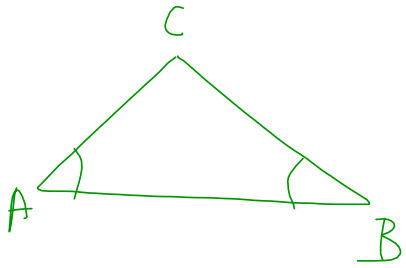
2. In triangle ABC, <A=<B and <C is an obtuse angle. Which statement is true?

A) AC ≅ AB and BC is the longest side.

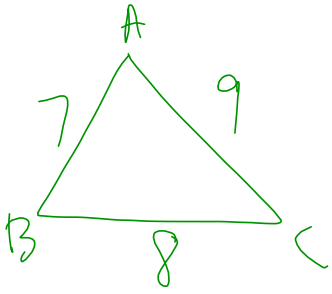
B) AC ≅ BC and AB is the longest side.

C) AC ≅ AB and BC is the shortest side.

D) AC ≅ BC and AB is the shortest side.



3. In ΔABC, AB = 7, BC = 8, and AC = 9. List the angles of ΔABC in order from smallest to largest:



∠C, ∠A, ∠B