

Triangle Inequality Warm-Up (Focus)

1.) For  $\triangle AKJ$  list the angles from least to greatest.

$\angle 1, \angle 2, \angle 9$

2.) For  $\triangle JYM$  list the angles from greatest to least.

$\angle 5, \angle YJM, \angle 8$

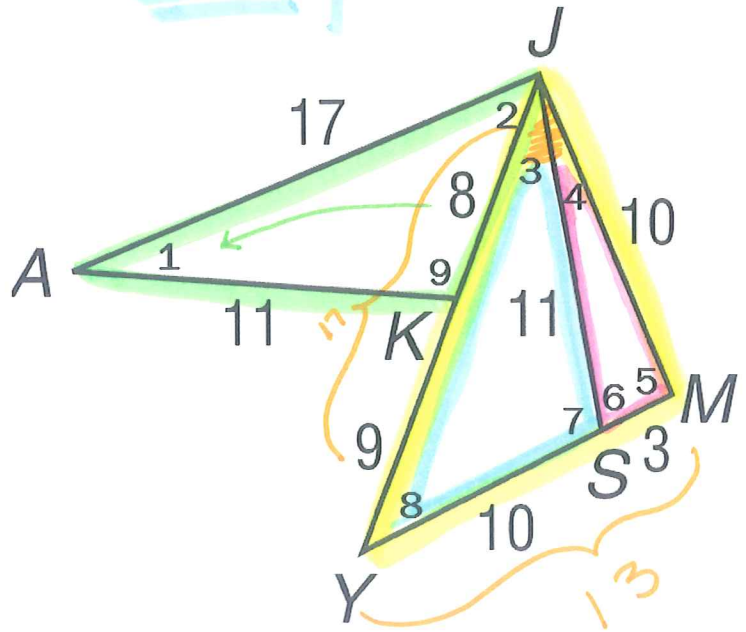
3.) What is the smallest angle in  $\triangle JMS$ ?

$\angle 4$

4.) What is the greatest angle in  $\triangle JSY$ ?

$\angle 7$

Key



5.) Find  $m\angle AEB$ .  $\triangle$  Sum

$\angle AEB + 110 + 30 = 180$

$\angle AEB = 40^\circ$

6.) Find  $m\angle CEB$ .

$\triangle$  Sum

$\angle CEB + 100 + 40 = 180$

$\angle CEB = 40^\circ$

7.) Find  $m\angle CDE$ .

$\triangle$  Sum

$\angle D + 55 + 50 = 180$

$\angle CDE = 75^\circ$

8.) List the sides of  $\triangle ABE$  in order from greatest to least.

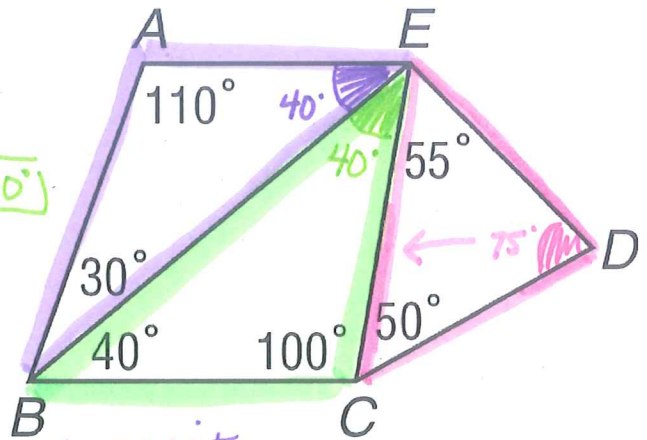
BE, AB, AE or you could write  $BE > AB > AE$

9.) What is the greatest side of  $\triangle CDE$ ?

EC op. the greatest  $\angle$  is the greatest side  $\ddot{\smile}$

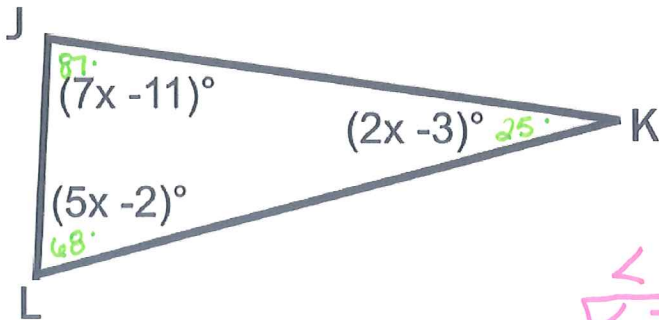
10.) List the sides of  $\triangle BCE$  in order from least to greatest.

EC = BC, BE or you can write  $EC = BC < BE$



Recall opposite the greatest  $\angle$  is the greatest side. So, if we don't know angles... Find them!

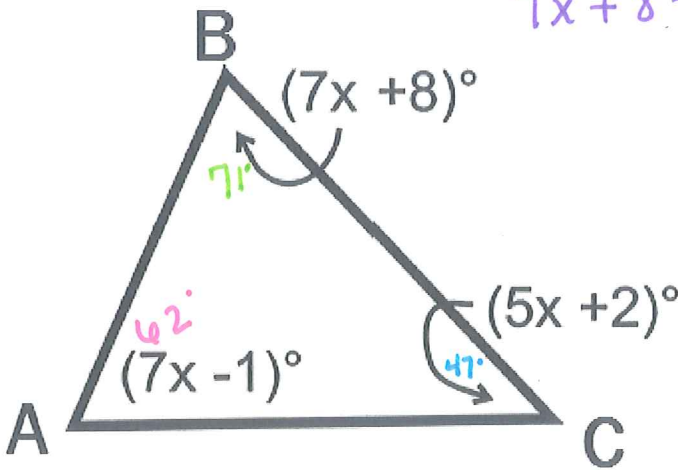
11.) List the sides in order from least to greatest.



least to greatest

$JL < JK < LK$   
 (JL, JK, LK)

12.) List the sides in order from greatest to least.



$AC > BC > AB$   
 (AC, BC, AB)

$\Delta$  Sum  $\angle J + \angle K + \angle L = 180^\circ$

$$7x - 11 + 2x - 3 + 5x - 2 = 180^\circ$$

$$14x - 16 = 180^\circ$$

$$14x = 196$$

$$\boxed{x = 14}$$

$$\angle J = 7(14) - 11 \quad \angle K = 2(14) - 3$$

$$\boxed{\angle J = 87^\circ}$$

$$\boxed{\angle K = 25^\circ}$$

$$\angle L = 5(14) - 2$$

$$\boxed{\angle L = 68^\circ}$$

$\Delta$  Sum  $\angle A + \angle B + \angle C = 180^\circ$

$$7x + 8 + 5x + 2 + 7x - 1 = 180$$

$$19x + 9 = 180^\circ$$

$$19x = 171^\circ$$

$$\boxed{x = 9}$$

$$\angle B = 7(9) + 8$$

$$\boxed{\angle B = 71^\circ}$$

$$\angle B = 5(9) + 2$$

$$\boxed{\angle B = 47^\circ}$$

$$\angle A = 7(9) - 1$$

$$\boxed{\angle A = 62^\circ}$$

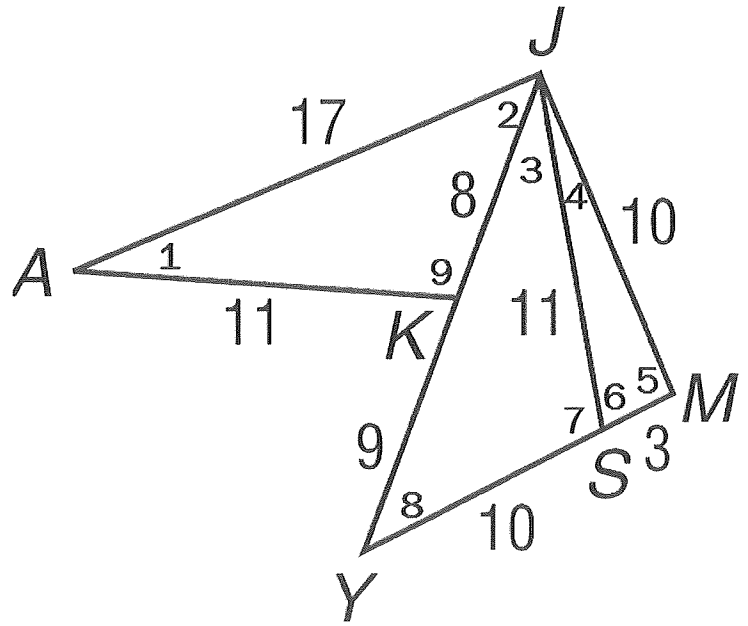
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5.) Find  $m\angle AEB$ .

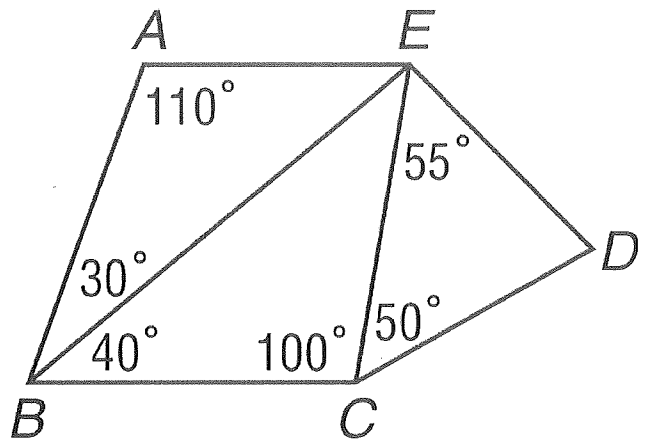
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7.) Find  $m\angle CDE$ .

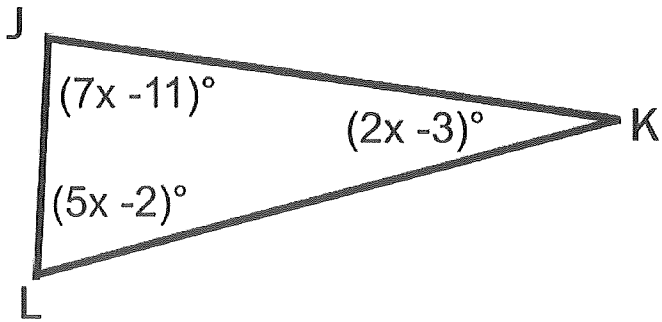
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9.) What is the greatest side of  $\triangle CDE$ ?

10.) List the sides of  $\triangle BCE$  in order from least to greatest.



11.) List the sides in order from least to greatest.



12.) List the sides in order from greatest to least.

