SLO: I can construct figures when given segment lengths and *explain* how I am *sure* my construction is correct.

(1) Use a compass (paper if you don't have another kind) to measure $\overline{AB}$ (read, "line segment AB"). Use your paper compass to show ALL of the points that are the same distance from C as A is from B. (Not a quiz! Help your neighbors!)

A ●————————● B

C ●

(2) Prepare for today's quiz by clearing your desk except for something to write with. Relax, you will **A**ce this quiz because you made flashcards OR you made a "memory palace" to help you remember it all!

(3) Vocabulary for "Segments and Distance". Prepare your flashcards or "memory palace" for the quiz on Friday.

triangle	equilateral	isosceles	scalene	right angle
right triangle	bisect	perpendicular	translation	reflection
symmetry	corresponding	triangle inequality	SSS $\cong$	

(4) Quick recap of what we know so far:

   a) The 5 main concepts in Geometry are (hint: bold words from sheet 2 problem number 6):

   _____, _____, _____, _____, _____

   b) Points are _____ represented in drawings by _____

   c) When we have 2 points, we can use a _____ to measure the _____ between
      them (also known as the length of the segment that connects the points)

   d) When we make a congruent copy of a point or segment, we are performing a _____ (hint:
      last word on the quiz).

(5) Use distance to construct isosceles triangles. $\overline{YZ}$ will be the bottom of every triangle (the triangles will overlap) and it will be side that differs in length for every triangle you make. (LEAVE YOUR ARCS SO I CAN SEE WHAT YOU DID)

In △RON, $\overline{RO}$ and $\overline{RN}$ are this long: ●——————————————————————●

In △EON, $\overline{EO}$ and $\overline{EN}$ are this long: ●————————————————————●

In △FON, $\overline{FO}$ and $\overline{FN}$ are this long: ●——————————————————●

In △LON, $\overline{LO}$ and $\overline{LN}$ are this long: ●————————————————●

In △CON, $\overline{CO}$ and $\overline{CN}$ are this long: ●————————————●

O ●——————————————————————————————————● N

(6) What do you notice about R, E, F, L, and C? _____

(7) What do you think will happen if we continue to make lengths of the two congruent sides shorter? _____

_____

(8) Connect the 5 points (REFLC) with a line segment long enough to intersect with $\overline{ON}$. Label the point of intersection T.

(9) How do you think the length of $\overline{OT}$ compares with the length of $\overline{NT}$? _____

    Why do you think that and how could you convince me you are correct? _____

_____

_____

(10) Pat yourself on the back, high five your neighbor, and remind yourself that you are a math genius. Here is a list of the things you just did:

      1. Improved your use of the compass – #5
      2. Constructed 5 isosceles triangles – #5
      3. Constructed a perpendicular bisector – #8
      4. Constructed a right angle – #8
      5. Illustrated reflection symmetry – #9
      6. Justified your relationship between OT and NT (wow, that's the start of a proof!) – #9
      7. Demonstrated the triangle inequality theorem – #7

(11) Since you can't leave now anyway because your head is so big with your crazy Geometry skills, here are 3 more triangle construction problems for you. BE SURE TO label each **vertex** (corner) with a letter
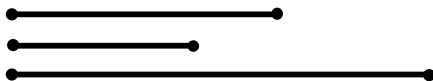
a) Construct triangle BIG so that the 3 sides have these lengths:

b) Excellent! Now construct triangle DEL so that the 3 sides have these lengths:
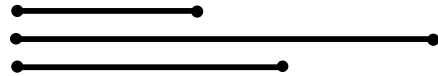
c) Okay, one more. Construct triangle YUP so that the 3 sides have these lengths:

(12) What type of triangle are the triangles in #11? (equilateral, isosceles, scalene)

(13) Are any of the triangles you constructed in problem 11 congruent (same size and shape)? Use the information you are given to answer the question. Provide evidence for your answer by showing that a tracing of one triangle is or is not the same as another triangle. (THIS QUESTION IS PRINTED AGAIN ON THE BACK OF THIS PAGE. WRITE YOUR RESPONSE THERE.)

(13) Are any of the triangles you constructed in problem 11 congruent (same size and shape)? Use the information you are given to answer the question. Provide evidence for your answer by showing that a tracing of one triangle is or is not the same as another triangle. Write your response below (hint: If there is a lot of space here, I'm expecting you to write a bunch of stuff):

(14) Almost done. Look at the picture at right and circle the statement that most accurately answers the question, "Which step have you reached today?"

Yes, I did it !
I WILL DO IT
I CAN DO IT
I'LL TRY TO DO IT
HOW DO I DO IT ?
I WANT TO DO IT
I CAN'T DO IT
I WON'T DO IT