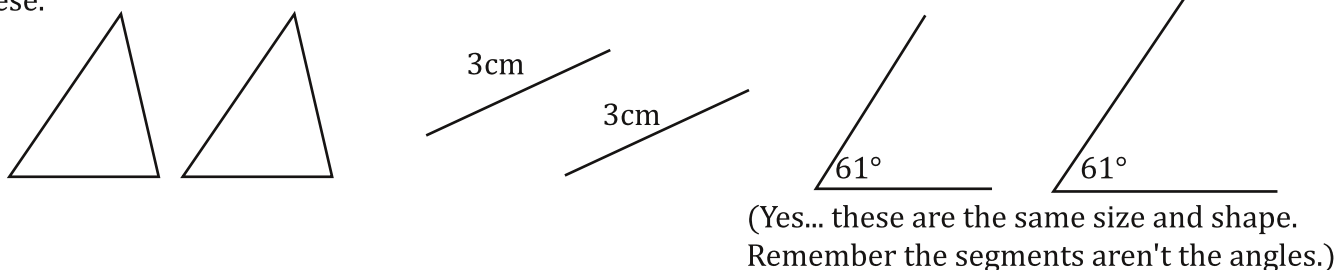


Congruence, Equal, and Reading Diagrams

Equal is not always equal... but at least we know that it is.

These are kind of weird concepts. They are very simple, but the weirdness is in the fact that they are almost the same but not the same.

Congruence: Saying that two figures are Congruent is to say they are the same size and shape. Like these.



Where this gets weird is that if two segments are the same length they are congruent, and if two angles are the same measure they are congruent. If two segments are congruent THEY are not equal. Their LENGTHS are equal. To say the two segments are equal is to say they are the same segment. This is only possible if the parallel universe theories are true. The same thing goes with angles...so you have to pick whether you want to say things are congruent or have the same measures. Usually it really doesn't matter.

If you want to say two segments are congruent. Do it like this...

$\overline{AB} \cong \overline{CD}$ The symbol " \cong " means "congruent" or "is congruent to..." So this reads "segment AB is congruent to segment CD."

If you want to say two angles are congruent. Do it like this...

$\angle A \cong \angle C$ Again, the symbol " \cong " means "congruent" or "is congruent to..." So this reads, "angle B is congruent to angle C."

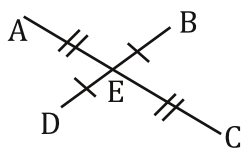
If you want to say the lengths of two segments are equal. Do it like this...

$AB = CD$ When two points are written next to each other, like "AB," without any symbol above it; it means the "length of." This reads... "the length of AB equals the length of CD."

If you want to say the measures of two angles are equal. Do it like this...

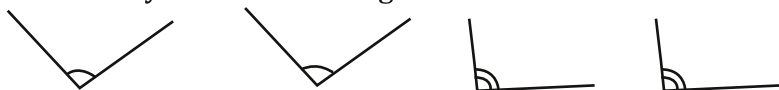
$m\angle A = m\angle B$ The "m" in front of " \angle " means "the measure of" so this reads... "the measure of angle A equals the measure of angle B."

Here is how you know two segments are the same length and congruent in a diagram...



Every segment that has a "\/" on it is congruent to every other segment that has a "\/" (called a slash or a hash mark). So, $\overline{BE} \cong \overline{DE}$ ($BE = DE$ too). Every segment that has two of them is congruent to every other with two. So, $\overline{AE} \cong \overline{CE}$ ($AE = CE$ too), but \overline{BE} is not \cong to \overline{AE} and so on....

Here is how you know two angles are the same measure and congruent in a diagram.

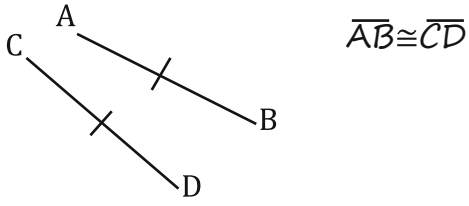


Any angle with one arc is congruent to all the others with one arc. Any angle with two arcs is congruent to any angle with two arcs.

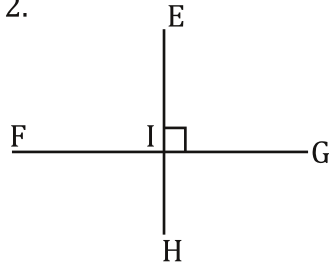
Let's practice...

For these... write what is going on in each diagram. Make sure to make use of your notation.

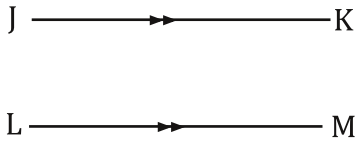
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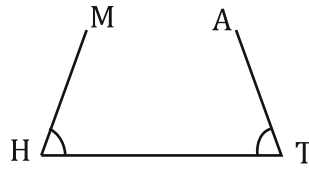
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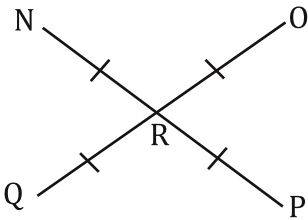
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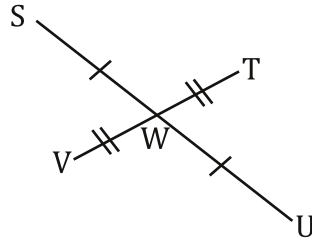
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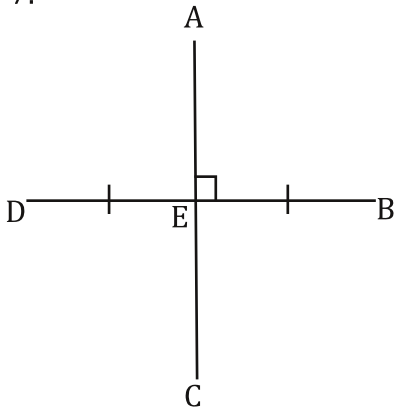
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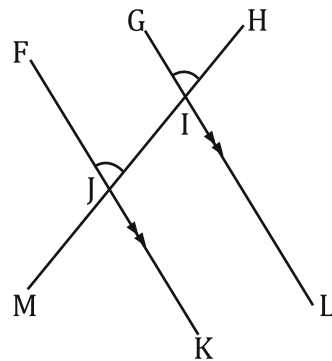
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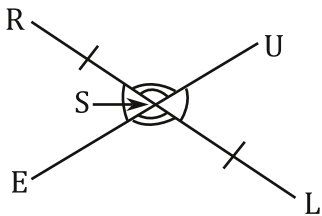
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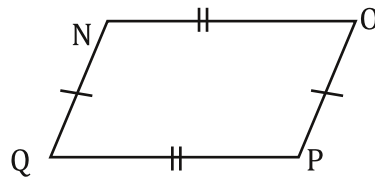
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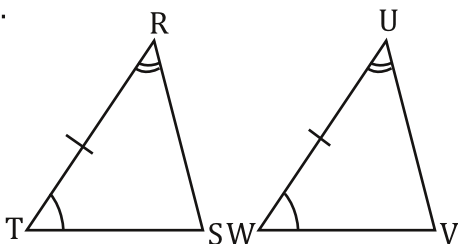
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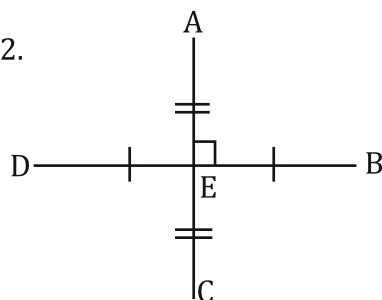
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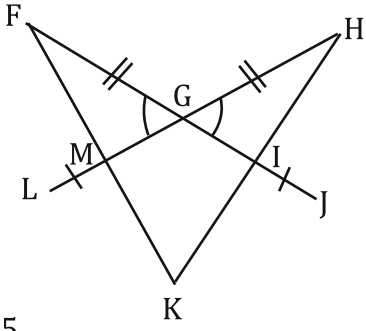
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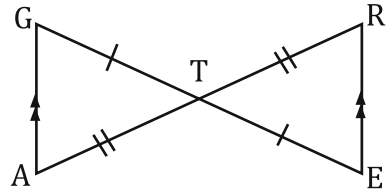
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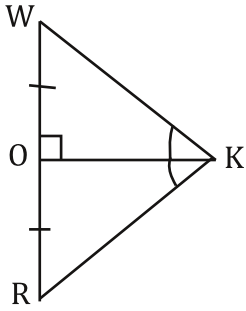
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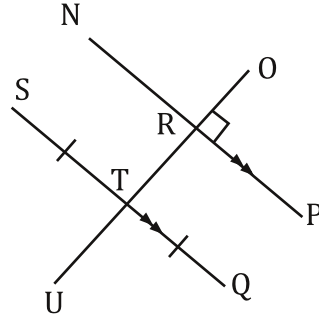
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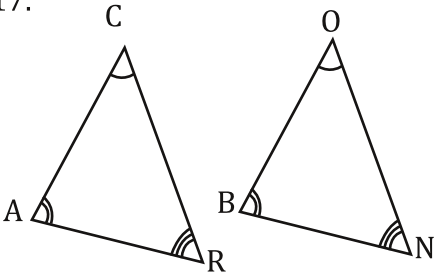
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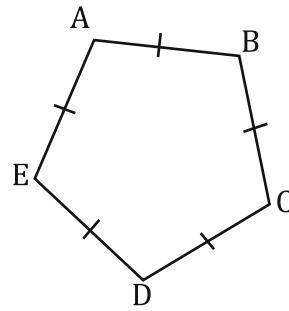
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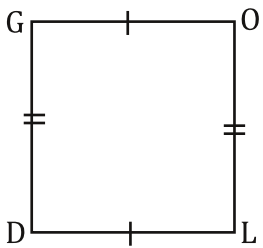
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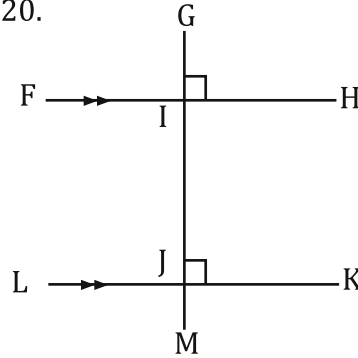
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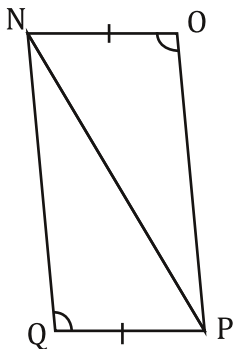
19.



20.



21.



22.

