

ANSWER MAZE



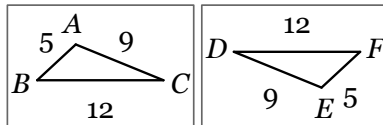
THE SSS TRIANGLE CONGRUENCE CRITERION

SSS: Lengths First, Letters Second

One page · 10–15 minutes · nothing to prepare

FREE

4

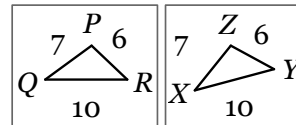


$\triangle ABC \cong \triangle FED \rightarrow$ go to 2

$\triangle ABC \cong \triangle EFD \rightarrow$ go to 7

Pair the shortest sides first. Then read the letters at their ends.

7



$\triangle PQR \cong \triangle ZXY \rightarrow$ go to 1

$\triangle PQR \cong \triangle XYZ \rightarrow$ go to 6

Write the three pairs of equal lengths before any letters.

1. **Hand out page 3**, one per student. Nothing else is needed.
2. **Say this once:** *“Start at box 4. Pair the sides by their lengths first. Only then write the letters. Write every box number in the row at the bottom as you go.”*
3. **Check a sheet quickly.** A student with no mistakes writes **4 7 1 8 3 5**: six boxes, then out.

Student sheet	page 3, one per student.
Answers	page 4.

Every box asks for the congruence statement of two triangles. In every box, SSS proves that the triangles are congruent. The question is which letters go together. The order of the letters matters: $\triangle ABC \cong \triangle EFD$ says that A goes with E, B with F, and C with D.

Every wrong answer comes from naming the letters before checking the lengths. One mistake is pairing corners by where they sit on the page, the bottom left with the bottom left and so on. The triangles are turned or flipped, so this goes wrong. These wrong answers send the student to box 2. The other mistake is writing the letters in the order they come, such as $\triangle ABC \cong \triangle DEF$, out of habit. These wrong answers send the student to box 6. In box 1, the letters in order are the right answer. So a student who always avoids that order also goes wrong. Boxes 2 and 6 ask the same kind of question again, and both of their answers lead back to the route.

The row at the bottom is the check. A clean run is six numbers. Each wrong answer adds at least one more. The hint in every box says what to look at, never which answer is right.

Guessing does not get a student out. Every simple guessing rule, such as always taking the first answer, goes wrong within the first two boxes.



This is the free lesson this activity came from. The worksheet, the full answers and the lesson plan are on it, at three levels of difficulty.

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Answer Maze

Start at box 4 · lengths first, letters second

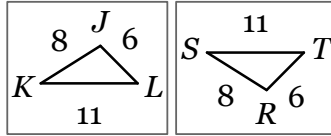
Name _____

Period _____

Date _____

Which congruence statement is right? In every box, SSS proves the two triangles congruent. The letters that go together stand in the same place: $\triangle ABC \cong \triangle EFD$ says A goes with E, B with F, and C with D. **Write the three pairs of equal sides first. Then write the letters.** Choose an answer, and go to the box it names.

1

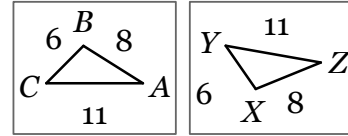


$\triangle JKL \cong \triangle TRS \rightarrow$ go to 2

$\triangle JKL \cong \triangle RST \rightarrow$ go to 8

Pair each side with the side of equal length, not the side in the same place.

2

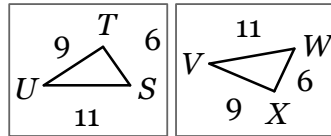


$\triangle ABC \cong \triangle ZXY \rightarrow$ go to 7

$\triangle ABC \cong \triangle ZYX \rightarrow$ go to 4

Read the letters at the two ends of each pair of equal sides.

3

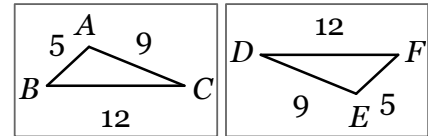


$\triangle STU \cong \triangle VWX \rightarrow$ go to 2

$\triangle STU \cong \triangle WXV \rightarrow$ go to 5

Look at the longest side of each triangle and the letters at its ends.

4

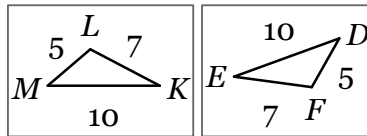


$\triangle ABC \cong \triangle FED \rightarrow$ go to 2

$\triangle ABC \cong \triangle EFD \rightarrow$ go to 7

Pair the shortest sides first. Then read the letters at their ends.

5

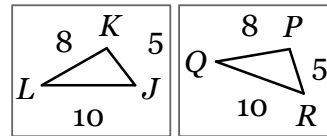


$\triangle KLM \cong \triangle EFD \rightarrow$ you are out

$\triangle KLM \cong \triangle DEF \rightarrow$ go to 6

List the sides of both triangles from shortest to longest.

6

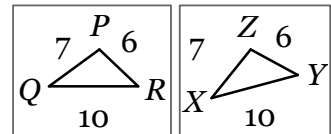


$\triangle JKL \cong \triangle PQR \rightarrow$ go to 7

$\triangle JKL \cong \triangle RPQ \rightarrow$ go to 1

Pair the lengths first. The letters come last.

7

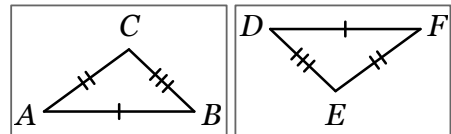


$\triangle PQR \cong \triangle ZXY \rightarrow$ go to 1

$\triangle PQR \cong \triangle XYZ \rightarrow$ go to 6

Write the three pairs of equal lengths before any letters.

8



$\triangle ABC \cong \triangle FDE \rightarrow$ go to 3

$\triangle ABC \cong \triangle DEF \rightarrow$ go to 6

Match the ticks by how many there are on each side.

Write each box number as you reach it:

--	--	--	--	--	--	--	--	--



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The route, in order. Boxes 2 and 6 are not on it. A student reaches them only by a wrong answer. They are the last two rows of the table.

4 → 7 → 1 → 8 → 3 → 5 → out

	Box	Right answer, and why	Wrong answer, and why a student picks it
1	Box 4	$\triangle ABC \cong \triangle EFD$ AB = EF = 5, BC = FD = 12, CA = DE = 9. So A goes with E, B goes with F, C goes with D.	" $\triangle ABC \cong \triangle FED$ " goes to box 2. A student who pairs the corners by where they sit on the page picks this.
2	Box 7	$\triangle PQR \cong \triangle ZXY$ PQ = ZX = 7, QR = XY = 10, RP = YZ = 6. So P goes with Z, Q goes with X, R goes with Y.	" $\triangle PQR \cong \triangle XYZ$ " goes to box 6. A student who writes the letters in the order they come, before checking the lengths, picks this.
3	Box 1	$\triangle JKL \cong \triangle RST$ JK = RS = 8, KL = ST = 11, LJ = TR = 6. So J goes with R, K goes with S, L goes with T.	" $\triangle JKL \cong \triangle TRS$ " goes to box 2. A student who pairs the corners by where they sit on the page picks this.
4	Box 8	$\triangle ABC \cong \triangle FDE$ AB = FD, BC = DE, CA = EF (the same number of ticks). So A goes with F, B goes with D, C goes with E.	" $\triangle ABC \cong \triangle DEF$ " goes to box 6. A student who writes the letters in the order they come, before checking the lengths, picks this.
5	Box 3	$\triangle STU \cong \triangle WXV$ ST = WX = 6, TU = XV = 9, US = VW = 11. So S goes with W, T goes with X, U goes with V.	" $\triangle STU \cong \triangle VWX$ " goes to box 2. A student who pairs the corners by where they sit on the page picks this.
6	Box 5	$\triangle KLM \cong \triangle EFD$ KL = EF = 7, LM = FD = 5, MK = DE = 10. So K goes with E, L goes with F, M goes with D.	" $\triangle KLM \cong \triangle DEF$ " goes to box 6. A student who writes the letters in the order they come, before checking the lengths, picks this.
	Box 2	$\triangle ABC \cong \triangle ZXY$ AB = ZX = 8, BC = XY = 6, CA = YZ = 11. So A goes with Z, B goes with X, C goes with Y.	" $\triangle ABC \cong \triangle ZYX$ " goes to box 4. A student who pairs the corners by where they sit on the page picks this.
	Box 6	$\triangle JKL \cong \triangle RPQ$ JK = RP = 5, KL = PQ = 8, LJ = QR = 10. So J goes with R, K goes with P, L goes with Q.	" $\triangle JKL \cong \triangle PQR$ " goes to box 7. A student who writes the letters in the order they come, before checking the lengths, picks this.

How to find the right answer in any box: find the side of the first triangle with each length, and the side of the second triangle with the same length. The letters at the ends of equal sides go together. The corner where two sides meet goes with the corner where their partners meet.

A student can find the last four boxes of the route by following the arrows backward from "you are out." So ask a student with a clean row to explain one box.