

ANSWER MAZE



CONGRUENT SEGMENTS AND SEGMENT BISECTORS

Congruent Segments & Midpoints

One page · 10–15 minutes · nothing to prepare

FREE

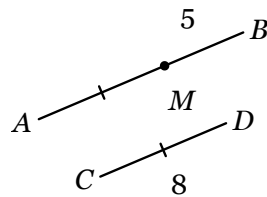
1

Find AB.

10 → go to 4

13 → go to 5

Same number of ticks
means the same
length, on any
segment.



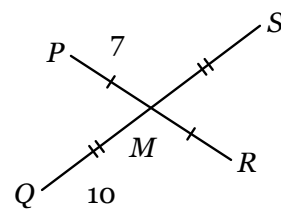
2

Find QS.

20 → go to 7

17 → go to 4

Each segment's
own two halves
have the same
marks as each
other.



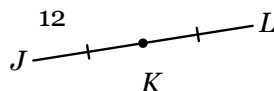
3

Find JL.

24 → go to 6

6 → go to 8

Circle what is asked
for, the half or the
whole, before you
start.



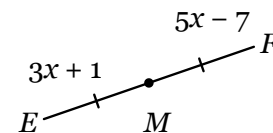
4

Find EF.

26 → go to 5

13 → go to 1

A tick pairs segments
by how many strokes
it has, not by where
they sit.



1. **Hand out page 3.** That is the whole preparation.
2. **Say this once:** *“Read the ticks, not the picture. Same number of ticks means the same length. Circle what the question asks for: x, a half, or the whole.”*
3. **Start at box 1.** Six boxes and you are out. **Write every box number in the row at the foot as you go.**

Student sheet	page 3, one per student. Same ticks, different ticks and no marks are printed on it as pictures.
Answers	page 4.

The route is 1 → 5 → 3 → 6 → 2 → 7 → out. Boxes 4 and 8 are not on it. **They look like every other box.** Each has a task, two answers, two box numbers and a hint. One of them has a drawing and one does not. Both of their answers lead back onto the route.

Each box off the route catches one kind of mistake. Four boxes send a wrong answer to box 8. A student there found a number that was not the one asked for. They halved when the whole was asked for, doubled when a half was asked for, or stopped at x or at the half. Two boxes send a wrong answer to box 4. A student there read the ticks wrongly. They took one tick on a half and one tick on a separate segment to mean a midpoint. Or they paired a half of one crossing segment with a half of the other.

What the row at the foot tells you in one glance. A clean run is **six numbers**. A longer row shows where it went wrong. The number just before 4 or 8 is the box they got wrong. Which of the two boxes it is tells you which mistake they made.



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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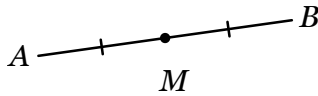
Answer Maze

Start at box 1 · circle what is asked for

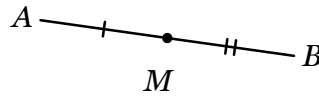
Name _____

Period _____

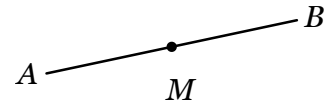
Date _____



Same ticks
 $AM \cong MB$, so $AM = MB$: M is the midpoint



Different ticks
nothing is said about AM and MB

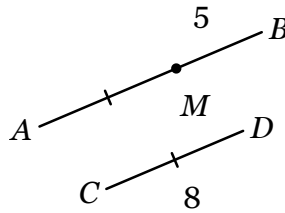


No marks
no way to tell, no matter how centered it looks

Find AB.

10 → go to 4
13 → go to 5

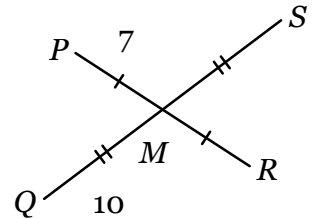
Same number of ticks
means the same length,
on any segment.



Find QS.

20 → go to 7
17 → go to 4

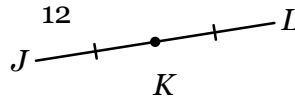
Each segment's own
two halves have the
same marks as each
other.



Find JL.

24 → go to 6
6 → go to 8

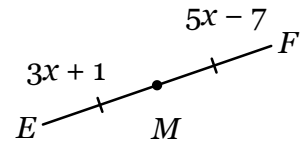
Circle what is asked for,
the half or the whole,
before you start.



Find EF.

26 → go to 5
13 → go to 1

A tick pairs segments by
how many strokes it has,
not by where they sit.



W is the midpoint of UV and $UV = 30$. **Find UW.**

60 → go to 8
15 → go to 3

A half is never longer than the whole it is half of.

T is the midpoint of XY , $XT = 4x - 3$ and $TY = 2x + 9$. **Find XT.**

6 → go to 8
21 → go to 2

The letter x is not the final answer. Put it back into the
length asked for.

N is the midpoint of GH , $GN = 5x - 8$ and $NH = 3x + 6$. **Find GH.**

54 → you are out
27 → go to 8

Put x back into both halves, then check the whole is twice
a half.

M is the midpoint of RS and $RM = 16$. **Find RS.**

8 → go to 5
32 → go to 3

Read the question once more: x , a half, or the whole?

Write every box number here as you go. It helps you find your way back if you get lost. **A clean run is six numbers.**

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Answer Maze — answers

For the teacher

The route, in order, is below. Boxes 4 and 8 are not on it. They are at the bottom of the table. A student reaches them only by giving a wrong answer.

1 → 5 → 3 → 6 → 2 → 7 → out

	Box	The task	Answer	Wrong answer	Right answer goes to
1	Box 1	Find AB . (with a drawing)	13	10. This is twice MB . The student read the ticks as making M the midpoint. It goes to box 4.	box 5
2	Box 5	W is the midpoint of UV and $UV = 30$. Find UW .	15	60. The student doubled instead of halving. It goes to box 8.	box 3
3	Box 3	Find JL . (with a drawing)	24	6. The student halved instead of doubling. It goes to box 8.	box 6
4	Box 6	T is the midpoint of XY , $XT = 4x - 3$ and $TY = 2x + 9$. Find XT .	21	6. This is x , but a length was asked for. It goes to box 8.	box 2
5	Box 2	Find QS . (with a drawing)	20	17. The student added a half of each crossing segment, instead of the two halves of one segment. It goes to box 4.	box 7
6	Box 7	N is the midpoint of GH , $GN = 5x - 8$ and $NH = 3x + 6$. Find GH .	54	27. This is GN , but the whole was asked for. It goes to box 8.	out
	Box 4	Find EF . (with a drawing)	26	13. This is EM , but the whole was asked for. It goes to box 1.	box 5
	Box 8	M is the midpoint of RS and $RM = 16$. Find RS .	32	8. The student halved instead of doubling. It goes to box 5.	box 3

Each wrong answer comes from a common mistake about midpoints, not from an arithmetic slip. These checks are worth saying aloud. The whole is exactly twice either half. A half is never longer than its whole. Put x back into both halves, and they come out the same. Only segments with the same number of ticks are marked equal.

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