

ANSWER MAZE



REFLECTIONS

Reflections: Which Point Is the Image?

One page · 10–15 minutes · nothing to prepare

FREE

3

Which point is the image of P in m ?
X → go to 4
Y → go to 7
Measure from P to m , then from m to each lettered point.

7

Which point is the image of P in m ?
R → go to 1
S → go to 6
Join P to each lettered point and look at the corner each segment makes with m .

1

m runs right through flag F. Which points of F are their own images?
None — every point crosses m → go to 4
Every point of F that lies on m → go to 5
Take a point where m crosses the flag. How far from m is it?

5

Which point is the image of P in m ?
U → go to 6
V → go to 8
Lay a square corner along m where each segment from P crosses it.

1. **Hand out page 3**, with a ruler (and a triangle ruler or any square corner of paper). That is the whole preparation.
2. **Say this once:** *“The image of P is on the other side of m, on the path perpendicular to m. It is exactly as far past m as P is before it. A point on m does not move at all. Measure. Do not fold.”*
3. **Start at box 3.** 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. The definition is printed on it as three small pictures.
Answers	page 4.

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

Every wrong point gets one half of the definition right. The definition puts two conditions in one sentence. The path from P to its image is perpendicular to m, and m cuts that path exactly in half. Many students can say the definition correctly and still check only one condition. Three boxes send a wrong answer to box 6. There the path is not perpendicular to m. Either the student went straight across or straight down the page to a slanted line m, which is the most common mistake, or m cuts the path in half but on a slant. Three boxes send a wrong answer to box 4. There the path is perpendicular to m, but the point lands too close to m. In box 1 the wrong answer, “None”, forgets that a point on m does not move at all.

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 6 or 4 is the box they got wrong. Box 6 means the student did not check the right angle. Box 4 means the student did not check the distance.



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.
chooseyourlesson.com — 135 free geometry lessons.

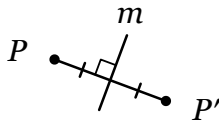
Answer Maze

Start at box 3 · which point is the image?

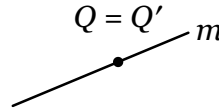
Name _____

Period _____

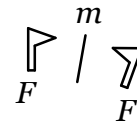
Date _____



P' is the image of P in m
PP' perpendicular to m, and cut in half by m

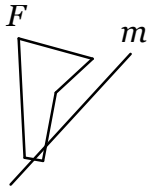


a point on m is its own image
every point of m stays where it is



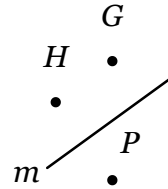
F' is the image of flag F
every point reflected. F' faces the other way

1



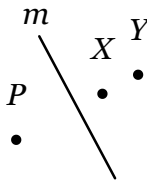
m runs right through flag F.
Which points of F are their own images?
None — every point crosses m
→ go to 4
Every point of F that lies on m
→ go to 5
Take a point where m crosses the flag.
How far from m is it?

2



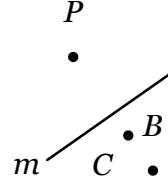
Which point is the image of P in m?
H → you are out
G → go to 6
Is each segment from P perpendicular to m, or on a slant?

3



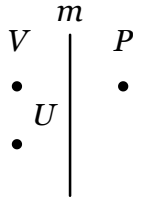
Which point is the image of P in m?
X → go to 4
Y → go to 7
Measure from P to m, then from m to each lettered point.

4



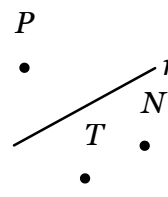
Which point is the image of P in m?
B → go to 7
C → go to 3
Two distances to m decide it: P's, and each lettered point's.

5



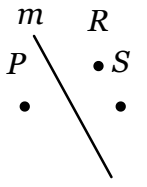
Which point is the image of P in m?
U → go to 6
V → go to 8
Lay a square corner along m where each segment from P crosses it.

6



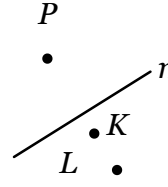
Which point is the image of P in m?
N → go to 7
T → go to 1
Check the corner where each segment from P crosses m.

7



Which point is the image of P in m?
R → go to 1
S → go to 6
Join P to each lettered point and look at the corner each segment makes with m.

8



Which point is the image of P in m?
K → go to 2
L → go to 4
Compare how far each lettered point stands from m with how far P does.

Write every box number here as you go. It shows you the way back if you lose your place. **A clean run is six numbers.**



135 free geometry lessons — worksheets, worked answers and lesson plans.
chooseyourlesson.com

Answer Maze — answers

For the teacher

The route, in order. Boxes 4 and 6 are not on the route. They come last in the table. A student reaches them only by a wrong answer.

3 → 7 → 1 → 5 → 8 → 2 → out

	Box	Right answer	Wrong answer and why it is wrong	Wrong goes to	Right goes to
1	Box 3	Y	X: the path is perpendicular to m, but the point is too close to m	box 4	box 7
2	Box 7	R	S: the path goes straight across the page, not perpendicular to the slanted m	box 6	box 1
3	Box 1	Every point of F that lies on m	None: the points of F that lie on m do not move	box 4	box 5
4	Box 5	V	U: m cuts the path in half, but the path crosses m on a slant	box 6	box 8
5	Box 8	K	L: the path is perpendicular to m, but the point is too close to m	box 4	box 2
6	Box 2	H	G: the path goes straight up or down the page, not perpendicular to the slanted m	box 6	out
	Box 4	B	C: the path is perpendicular to m, but the point is too close to m	box 3	box 7
	Box 6	T	N: m cuts the path in half, but the path crosses m on a slant	box 7	box 1

No box depends on sharp eyes. Each wrong point is at least 4.5 mm from the true image. A wrong point that is too close is at most 0.55 times as far from m as P is. A slanted path is at least 25° away from perpendicular.

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. One shortcut does work: a student can find the route by following the arrows backward from “you are out.” So ask a student with a clean row to explain one box.