

ANSWER MAZE



ROTATIONS

Rotations: Where Does P Land?

One page · 10–15 minutes · a compass and a protractor

FREE

5

Turn F 180° about O. Where does tip P land?

G → go to 4
H → go to 2

Compass point on O, pencil on P, and swing.

2

Turn F 90° clockwise about O. Where does tip P land?

T → go to 8
U → go to 6

Trace round the circle from P the way a clock's hands go.

8

Turn F 90° counterclockwise about O. Where does tip P land?

N → go to 4
M → go to 3

Compare O to P with O to each lettered point.

3

Turn F 60° counterclockwise about O. Where does tip P land?

D → go to 7
C → go to 6

Protractor center on O, zero line along OP: read round from P.

1. **Hand out page 3**, with a compass and a protractor each. That is the whole preparation.
2. **Say this once:** *“P turns about O, never about a corner of the flag. Check two things. The answer must be on the circle the compass draws about O through P. And the protractor at O must show the right angle, in the right direction.”*
3. **Start at box 5.** 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. Center, angle and the two directions are printed on it as three small pictures.
Answers	page 4.

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

Every wrong point fails one of the two checks and passes the other. Three boxes send a wrong answer to box 4. There the point is not on P's circle about O. Either P was turned about the foot of the pole instead of O, or the point is on the right line from O but too far out. Many students turn a shape about one of its own corners instead of the given center. Three boxes send a wrong answer to box 6. There the point is on the circle, but it went the wrong direction or turned the wrong amount. A student can get the angle right and the direction wrong, or the other way around.

The printed circle. On the route, boxes 5, 2, 3 and 1 show P's circle. In the other boxes the student draws it with the compass. After the first two boxes, the circle is shown only where the angle is not a quarter turn or a half turn, because those two turns are easier. The half turns have no direction word, because 180° either way lands in the same place.

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 6 is the box they got wrong. Box 4 means they skipped the compass check. Box 6 means they skipped the protractor check.



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 5 · where does P land?

Name _____

Period _____

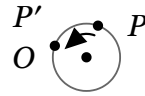
Date _____



center O · angle · direction
OP' is as long as OP: one circle

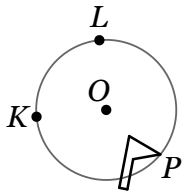


clockwise
the way a clock's hands go



counterclockwise
the other way round

1

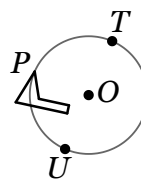


Turn F 135° clockwise about O.
 Where does tip P land?

L → go to 6
K → you are out

Which way do a clock's hands go round O, starting at P?

2

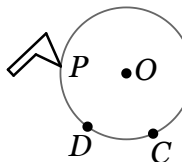


Turn F 90° clockwise about O.
 Where does tip P land?

T → go to 8
U → go to 6

Trace round the circle from P the way a clock's hands go.

3

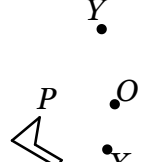


Turn F 60° counterclockwise about O. Where does tip P land?

D → go to 7
C → go to 6

Protractor center on O, zero line along OP: read round from P.

4

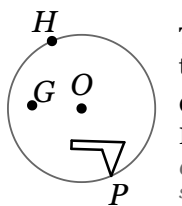


Turn F 90° clockwise about O.
 Where does tip P land?

X → go to 5
Y → go to 2

Set the compass from O to P and swing it through both lettered points.

5

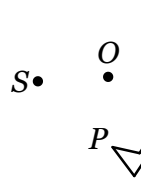


Turn F 180° about O. Where does tip P land?

G → go to 4
H → go to 2

Compass point on O, pencil on P, and swing.

6

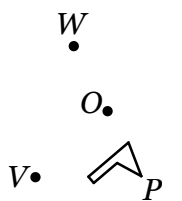


Turn F 90° counterclockwise about O. Where does tip P land?

R → go to 8
S → go to 2

Start at P and trace round O in the direction the task names.

7

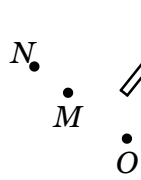


Turn F 180° about O. Where does tip P land?

W → go to 1
V → go to 4

Draw the circle about O through P first.

8



Turn F 90° counterclockwise about O. Where does tip P land?

N → go to 4
M → go to 3

Compare O to P with O to each lettered point.

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.

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Answer Maze — answers

For the teacher

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

5 → 2 → 8 → 3 → 7 → 1 → out

	Box	Turn	Answer	The wrong answer, and what it gets wrong	Right goes to
1	Box 5	180°	H	G: turned about the foot of the pole → box 4	box 2
2	Box 2	90° clockwise	T	U: turned the other way → box 6	box 8
3	Box 8	90° counterclockwise	M	N: on the right line from O, outside the circle → box 4	box 3
4	Box 3	60° counterclockwise	D	C: turned the wrong amount (120° counterclockwise) → box 6	box 7
5	Box 7	180°	W	V: turned about the foot of the pole → box 4	box 1
6	Box 1	135° clockwise	K	L: turned the other way → box 6	out
	Box 4	90° clockwise	Y	X: turned about the foot of the pole → box 5	box 2
	Box 6	90° counterclockwise	R	S: turned the other way → box 2	box 8

Why each answer is right. Box 5: H is on the circle about O through P, straight across O from P. G is where P lands if F turns about the foot of the pole instead of O. Box 2: T is on the circle about O through P, and the angle at O from P to T is 90° clockwise. U is on the same circle, but 90° the other way. Box 8: M is on the circle about O through P, and the angle at O from P to M is 90° counterclockwise. N is on the right line from O, but farther from O than P is. Box 3: D is on the circle about O through P, and the angle at O from P to D is 60° counterclockwise. C is on the same circle, but 120° counterclockwise from P. Box 7: W is on the circle about O through P, straight across O from P. V is where P lands if F turns about the foot of the pole instead of O. Box 1: K is on the circle about O through P, and the angle at O from P to K is 135° clockwise. L is on the same circle, but 135° the other way. Box 4: Y is on the circle about O through P, and the angle at O from P to Y is 90° clockwise. X is where P lands if F turns about the foot of the pole instead of O. Box 6: R is on the circle about O through P, and the angle at O from P to R is 90° counterclockwise. S is on the same circle, but 90° the other way.

No point depends on sharp eyes. A wrong point on P's circle is at least 25° from the right place. A wrong point off the circle is at least 3 mm off it.

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