

ANSWER MAZE



CONSTRUCTIONS: COPYING A SEGMENT AND AN ANGLE

Copying a Segment and an Angle: What Is the Next Move?

One page · 10–15 minutes · nothing to prepare

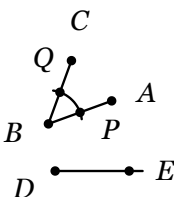
FREE

1

**Onto ray DE .
Compass still at the
arc at B . Point on:**

**$E \rightarrow$ go to 7
 $D \rightarrow$ you are out**

*Which point will be the vertex
of the copy?*

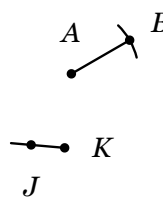


2

**Onto ray KJ . Compass
set to AB . Point on:**

**$K \rightarrow$ go to 8
 $J \rightarrow$ go to 7**

*Where does a ray start? Where
must the copy start?*

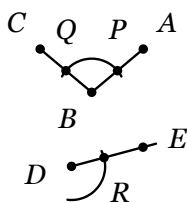


3

**Compass now set to
 PQ . Point on:**

**$D \rightarrow$ go to 7
 $R \rightarrow$ go to 6**

*Where does the chord start
on the given angle? Which
point is its partner on the
copy?*

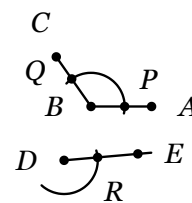


4

**Next: the arc from
 R . Compass:**

**leave it $\rightarrow$ go to 2
reset it to $PQ \rightarrow$
go to 5**

*What does the arc from R
have to carry across from
the given angle?*



1. **Hand out page 3**, one per student. No compass is needed. Every box shows a copy stopped halfway. The question asks what the next move is.
2. **Say this once:** *“The segment copy has one setting. You never change it. The angle copy has two settings. You change the second setting to the distance between the two crossings.”*
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. The compass-opening box is printed on it.
Answers	page 4.

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

The two boxes off the route catch the two most common mistakes. Three boxes send a wrong answer to box 4. A student there got the compass *setting* wrong. Either they changed it when it must stay the same, for example by closing the compass to fit a short ray. Or they kept it when it must change: if the last arc of an angle copy uses the first opening, every copy comes out at 60° . Three boxes send a wrong answer to box 7. A student there put the compass *point* in the wrong place. They put it on the far letter of the ray instead of its endpoint, or on the vertex instead of on the crossing.

What the row at the foot tells you in one glance. A clean run is **six numbers**. In a longer row, the number just before 4 or 7 is the box they got wrong. Before 4, the compass setting was wrong. Before 7, the compass point was in the wrong place.



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 · what is the next move?

Name _____

Period _____

Date _____

Copy a segment. It has one setting. Use the setting from the given segment. Never reopen it. **Copy an angle. It has two settings.** First, choose any opening. Use it the same at the given angle and at the copy. Second, measure the distance between the two crossings on the given angle, then mark that same distance on the copy. **Last lesson:** any opening is legal. Nothing is ever measured.

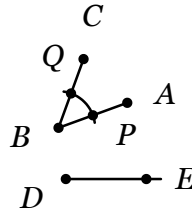
Every box is somebody's copy stopped half-way. It shows segment AB onto a ray, or angle ABC onto ray DE . Choose the next move.

1

Onto ray DE . Compass still at the arc at B . Point on:

E → go to 7
D → you are out

Which point will be the vertex of the copy?

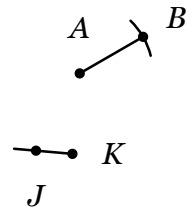


2

Onto ray KJ . Compass set to AB . Point on:

K → go to 8
J → go to 7

Where does a ray start? Where must the copy start?

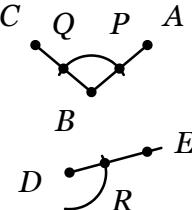


3

Compass now set to PQ . Point on:

D → go to 7
R → go to 6

Where does the chord start on the given angle? Which point is its partner on the copy?

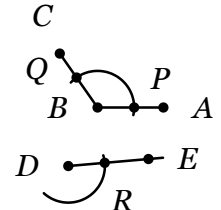


4

Next: the arc from R . Compass:

leave it → go to 2
reset it to PQ → go to 5

What does the arc from R have to carry across from the given angle?

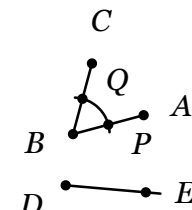


5

Next: the arc from D . Compass:

reset it to a new one → go to 4
leave it → go to 2

Which setting is the free one here? Where must it be used?

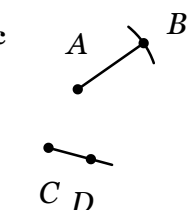


6

Ray too short. Next: the arc from C . Compass:

leave it → go to 1
reset it to CD → go to 4

What decides the length of the copy: the drawn ray, or the original?

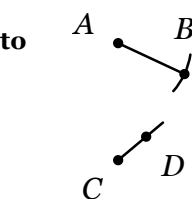


7

Onto ray CD . Compass set to AB . Point on:

C → go to 2
D → go to 8

Where must the copy begin?

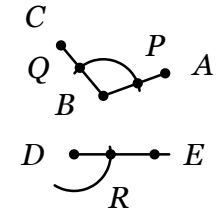


8

Next: the arc from R . Compass:

reset it to PQ → go to 3
leave it → go to 4

What length does the arc from R have to carry across?



Write every box number here as you go. It helps you find your 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 7 are not on it. They come last in the table. A student reaches them only by a wrong answer.

5 → 2 → 8 → 3 → 6 → 1 → out

	Box	Answer	Wrong answer goes to	Right answer goes to
1	Box 5	leave it	reset it to a new one → box 4 (wrong compass setting)	box 2
2	Box 2	K	J → box 7 (compass point in the wrong place)	box 8
3	Box 8	reset it to PQ	leave it → box 4 (wrong compass setting)	box 3
4	Box 3	R	D → box 7 (compass point in the wrong place)	box 6
5	Box 6	leave it	reset it to CD → box 4 (wrong compass setting)	box 1
6	Box 1	D	E → box 7 (compass point in the wrong place)	out
	Box 4	reset it to PQ	leave it → box 2 (wrong compass setting)	box 5
	Box 7	C	D → box 8 (compass point in the wrong place)	box 2

Why each right answer is right. Box 1, *D*: The arc on the copy is drawn from the copy's own vertex, which is the endpoint of the ray. Box 2, *K*: A ray is named starting from its endpoint, and the copy starts there. Box 3, *R*: On the given angle, PQ starts where the arc crosses an arm. On the copy, that point is R, where the arc crosses the ray. Box 4, *reset it to PQ*: The second setting is PQ, the distance between the crossings. If the first opening is kept, every copy comes out at 60° . Box 5, *leave it*: The first opening can be anything, but it must be the same at the given angle and at the copy. Box 6, *leave it*: The only setting comes from the given segment and is never changed. The ray keeps going, so draw it longer. Box 7, *C*: The copy starts at the endpoint of the ray. Box 8, *reset it to PQ*: The second setting is PQ, the distance between the crossings. If the first opening is kept, every copy comes out at 60° .

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.