

CUT & GLUE SORT

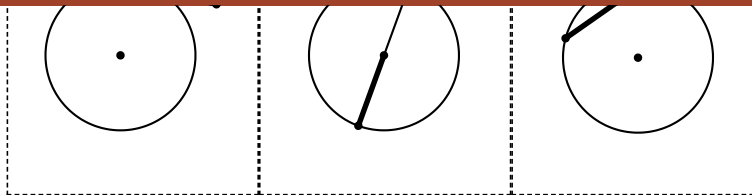


CIRCLE VOCABULARY AND SIMILAR CIRCLES

Radius, Chord, or No Name?

Twelve circles · one thick segment each · diameters are chords · three rows

FREE



Row 1. Radius. The thick segment runs from the center to a point on the circle.

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Row 2. Chord. Both ends of the thick segment are on the circle. A diameter is a chord.

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Row 3. No name. The thick segment is not a radius and not a chord.

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1. **Hand out pages 3 and 4**, one of each per student, with scissors and glue.
2. **Say this once:** *“Look only at the thick segment. Where are its two ends? A radius goes from the center to the circle. A chord has both ends on the circle. Anything else has no name.”*
3. **Check a sheet in ten seconds:** every row gets four pieces.

Student sheets	pages 3 and 4, one of each per student. Page 3 has the three rows. Page 4 has the pieces and the six names as small pictures.
Answers	page 5.

Each piece shows a circle with its center dotted and one thick segment. The student decides from the two ends of the thick segment. This sheet uses these definitions. A radius is a segment from the center to a point on the circle. A chord is a segment with both ends on the circle. A diameter is a chord through the center. Some textbooks use other definitions, so tell the class which ones this sheet uses.

Rows 1 and 2 hold the pieces students get wrong most. Two of the chords are diameters. Many students say “that is a diameter, not a chord”, but a diameter is a chord. One radius is the thick half of a thin diameter. Students often name the whole line and say “diameter”. Only the thick part counts, and it runs from the center to the circle.

Row 3 holds segments that have no name. One piece runs from a point on the circle to a point outside it. Two pieces run from a point on the circle and stop inside it. One piece starts at the center and runs past the circle. They look like a chord or a radius that went too far or not far enough. Students draw segments like these by mistake, so they need to see that such a segment has no name. Guessing does not work: a student who sorts by a quick look, such as “it touches the center, so it is a radius”, places at most nine pieces correctly.



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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Cut & Glue Sort — radius, chord, or no name?

Circle vocabulary

Name _____

Period _____

Date _____

Each piece on the next page shows a circle with its center dotted and one thick segment. **Look at where the two ends of the thick segment are. Then glue the piece in its row.**

Row 1. Radius. The thick segment runs from the center to a point on the circle.

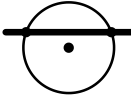
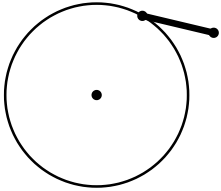
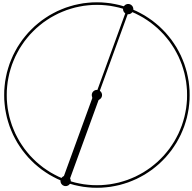
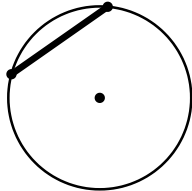
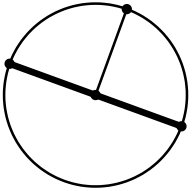
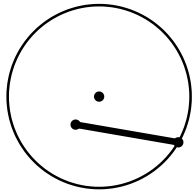
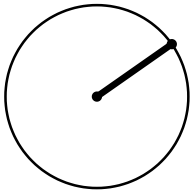
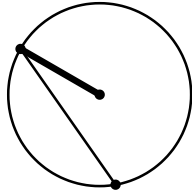
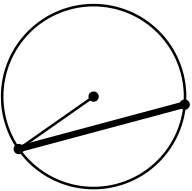
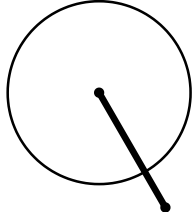
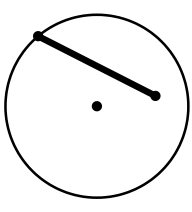
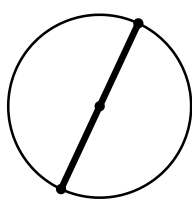
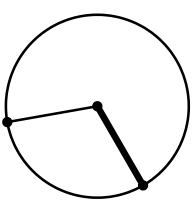
Row 2. Chord. Both ends of the thick segment are on the circle. A diameter is a chord.

Row 3. No name. The thick segment is not a radius and not a chord.

Cut & Glue Sort — the pieces

Cut along the dashed lines

Cut out the twelve pieces. Glue each one in its row on the other sheet. A dot marks the center and each end of the thick segment counts.

 radius	 chord	 diameter (a chord)	 secant line	 tangent line	 arc
1 	2 	3 	4 		
5 	6 	7 	8 		
9 	10 	11 	12 		



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Each row holds four pieces. Every piece is listed by the number printed on its corner, with the reason.

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- 1 **Radius. The thick segment runs from the center to a point on the circle.**
2. A thin diameter; only its lower half, from the center to the circle, is thick. *Why:* It runs from the center to a point on the circle, so it is a radius. Only one end is on the circle, so it is not a chord.
6. A thick segment from the center up to the right, to a point on the circle. *Why:* It runs from the center to a point on the circle, so it is a radius. Only one end is on the circle, so it is not a chord.
7. A thick segment from the center to a point on the upper left of the circle. A thin segment joins that point to another point of the circle. *Why:* It runs from the center to a point on the circle, so it is a radius. Only one end is on the circle, so it is not a chord.
12. A thick segment from the center down to the right, to a point on the circle. A thin radius goes to the left. *Why:* It runs from the center to a point on the circle, so it is a radius. Only one end is on the circle, so it is not a chord.
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- 2 **Chord. Both ends of the thick segment are on the circle. A diameter is a chord.**
3. A short thick segment near the top left, closer to the circle than to the center. Both ends are on the circle. *Why:* Both ends are on the circle, so it is a chord. It does not pass through the center, so it is not a diameter.
4. A thick segment across the circle through the center, with a thin radius above it. *Why:* Both ends are on the circle and it passes through the center, so it is a diameter, and a diameter is a chord.
8. A long thick segment below the center. Both ends are on the circle. A thin radius meets its left end. *Why:* Both ends are on the circle, so it is a chord. It does not pass through the center, so it is not a diameter.
11. A thick segment across the circle through the center, slanting up to the right. *Why:* Both ends are on the circle and it passes through the center, so it is a diameter, and a diameter is a chord.
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- 3 **No name. The thick segment is not a radius and not a chord.**
1. A thick segment from a point on the circle out to a point outside it. *Why:* One end is on the circle and the other is outside it, so it is not a radius and not a chord. It has no name on this sheet.
5. A thick segment from a point on the circle that stops inside the circle, short of the center. *Why:* One end is on the circle and the other is inside it, so it is not a radius and not a chord. It has no name on this sheet.
9. A thick segment from the center that runs on past the circle. *Why:* It starts at the center but runs past the circle, so it is not a radius and not a chord. It has no name on this sheet.
10. A long thick segment from a point on the circle that stops inside the circle before it reaches the other side. *Why:* One end is on the circle and the other is inside it, so it is not a radius and not a chord. It has no name on this sheet.
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To check a piece with a student, ask: “Put one finger on each end of the thick segment. Is that end the center, a point on the circle, or somewhere else?”