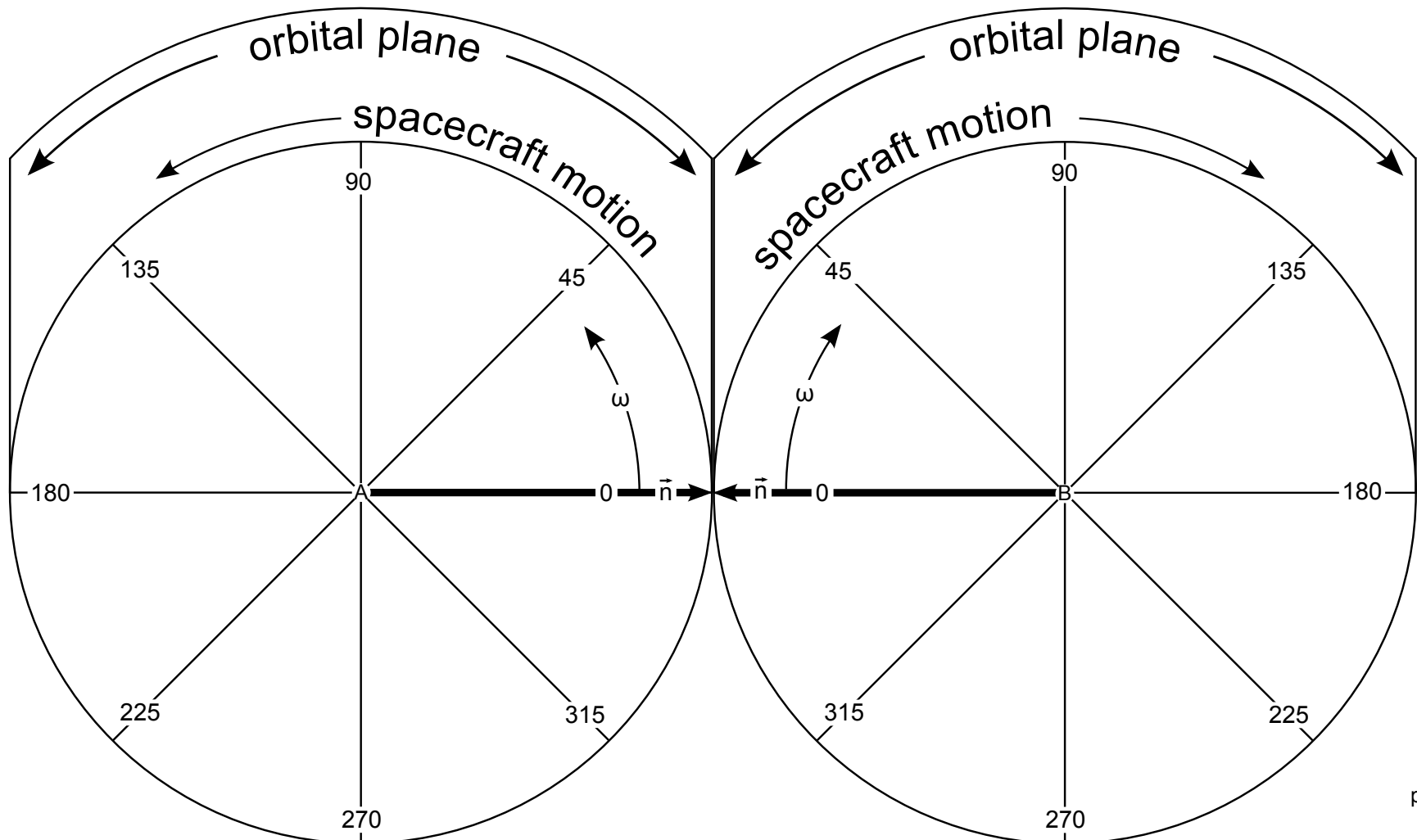
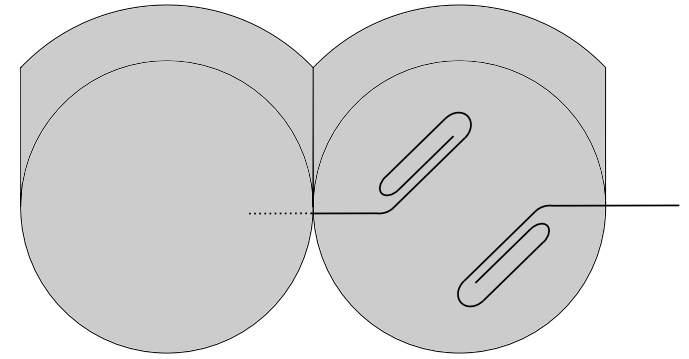


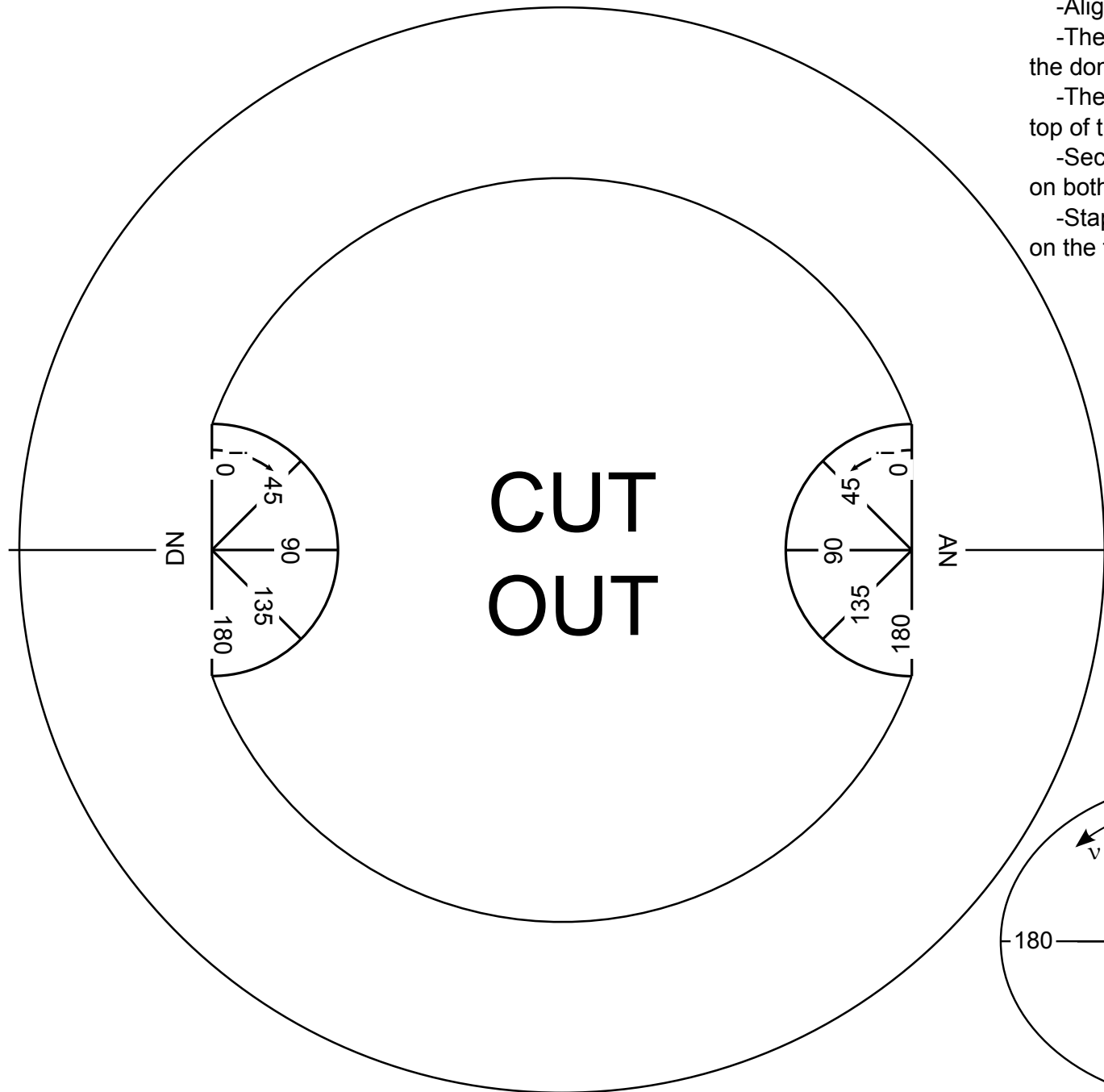
Astro 310 Whiz Wheel

You are building a tool to help you visualize orbits. An image of the finished product is in the center of page 3.

1. Cut out the piece below. Keep it together as 1 piece.
2. Create an axle with 2 unfolded paperclips. On the back of one circle, tape 2 unfolded paperclips so that they stick out approx 1 inch at 0 and 180. The paperclip pointing toward the center (the left paperclip in this diagram) should go behind the other circle.
3. Apply glue and fold the circles together.

2.

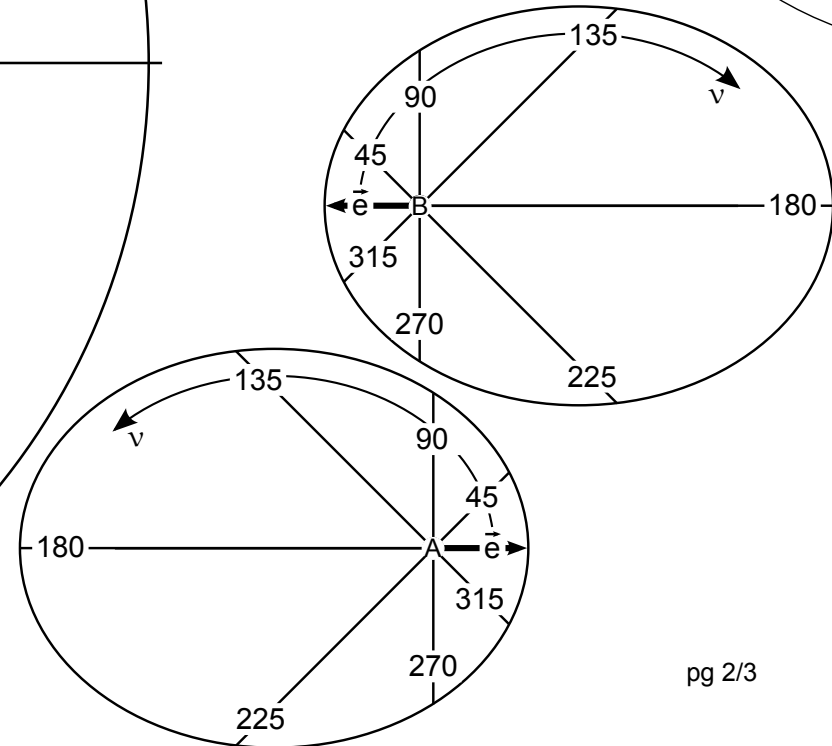
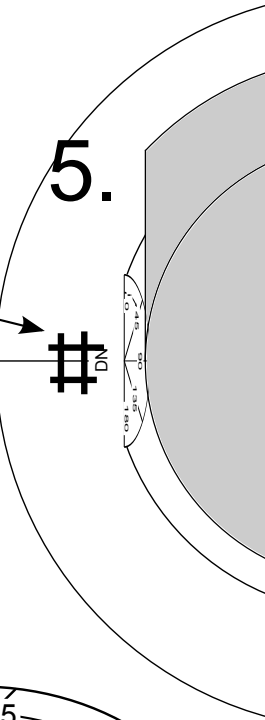




4. Cut out the donut below. Bend the inner tabs up.

5. Attach the orbital plane (Steps 1-3) to the donut.

- Align the \mathbf{n} vector with "AN."
- The paperclip axle should be below the donut along the "AN"-"DN" line.
- The "orbital plane" tab should be on top of the donut.
- Secure the axle with lots of staples on both sides (AN and DN)
- Staple the back of the donut (shown on the front here for clarity of position)



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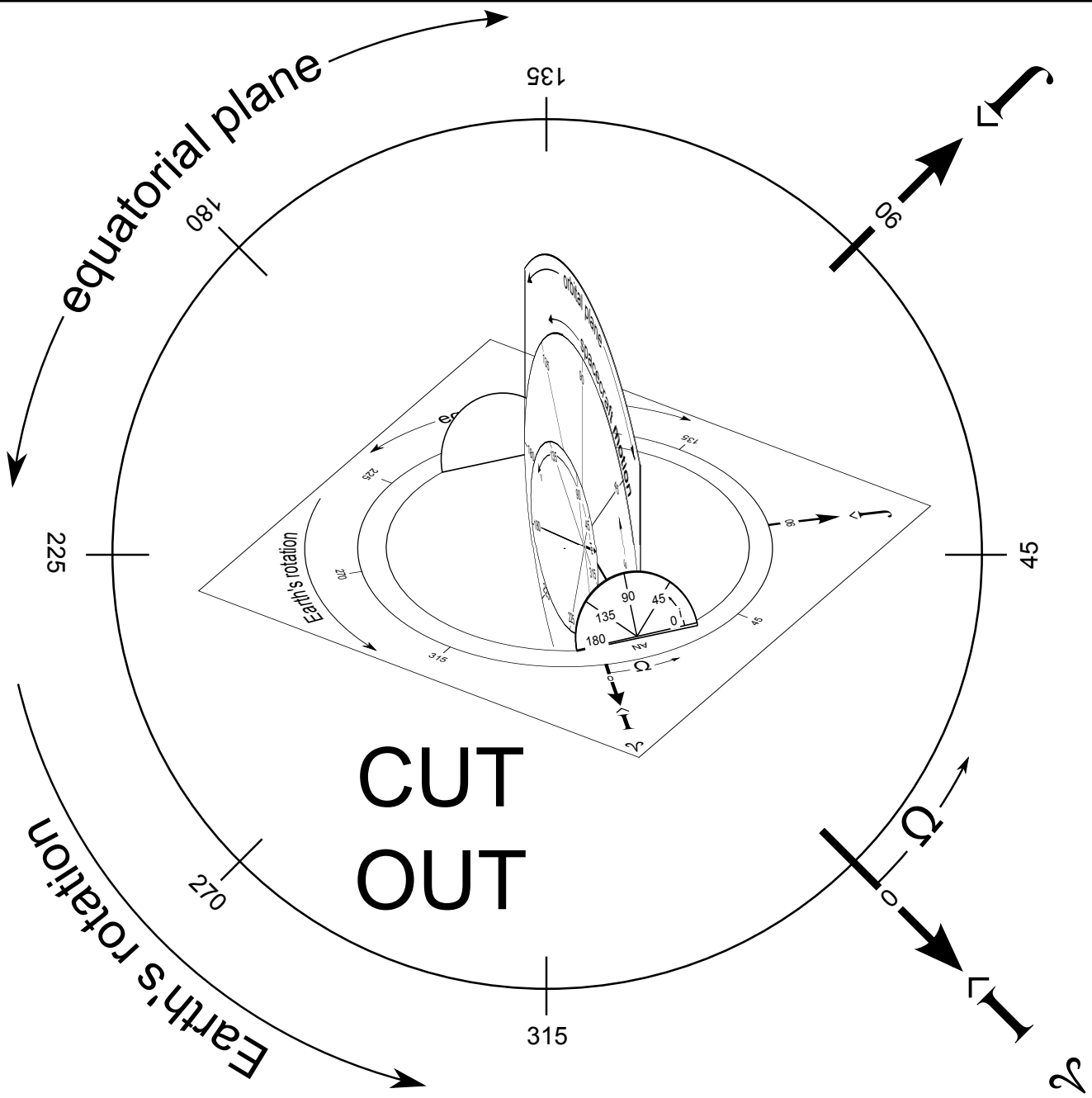
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- 6. Cut out the frame on this page.
- 7. Place the donut behind the frame.
 - The writing should face up on both the donut and the frame.
 - The "orbital plane" tab should stick out above the frame.

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- 8. Fold the frame into a square.
 - fold the big ends in (top and bottom)
 - fold the small tabs in (sides)
 - donut should rotate freely; trim if necessary
 - glue the tabs in place
- 9. Cut out the ellipses from pg 2
- 10. With a tack and a frog, attach the 2 ellipses to the orbital plane
 - ensure that you match up A/A and B/B

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