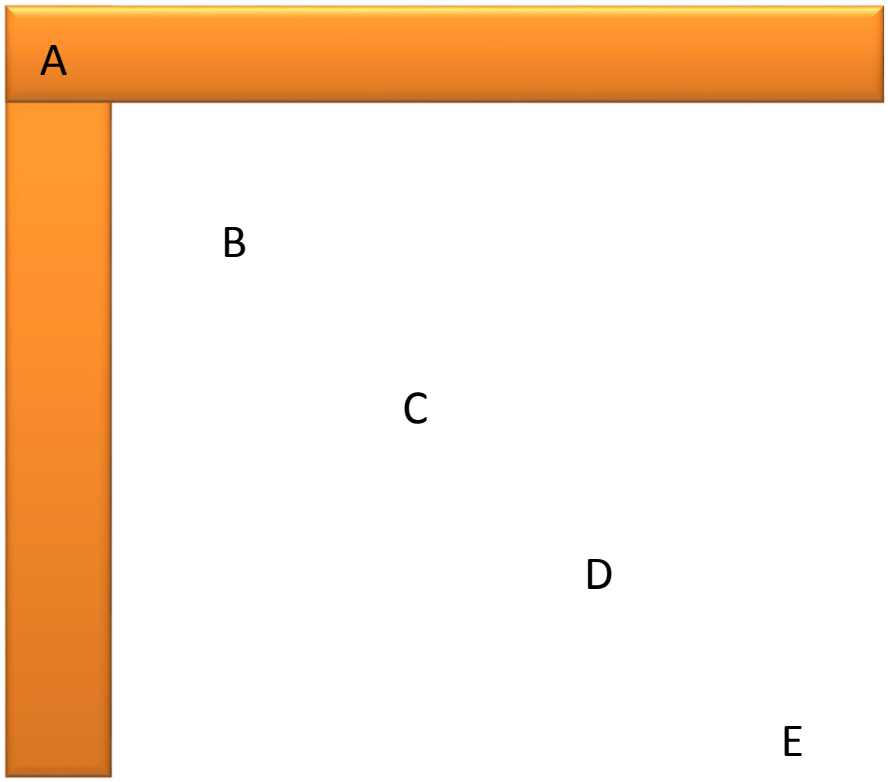
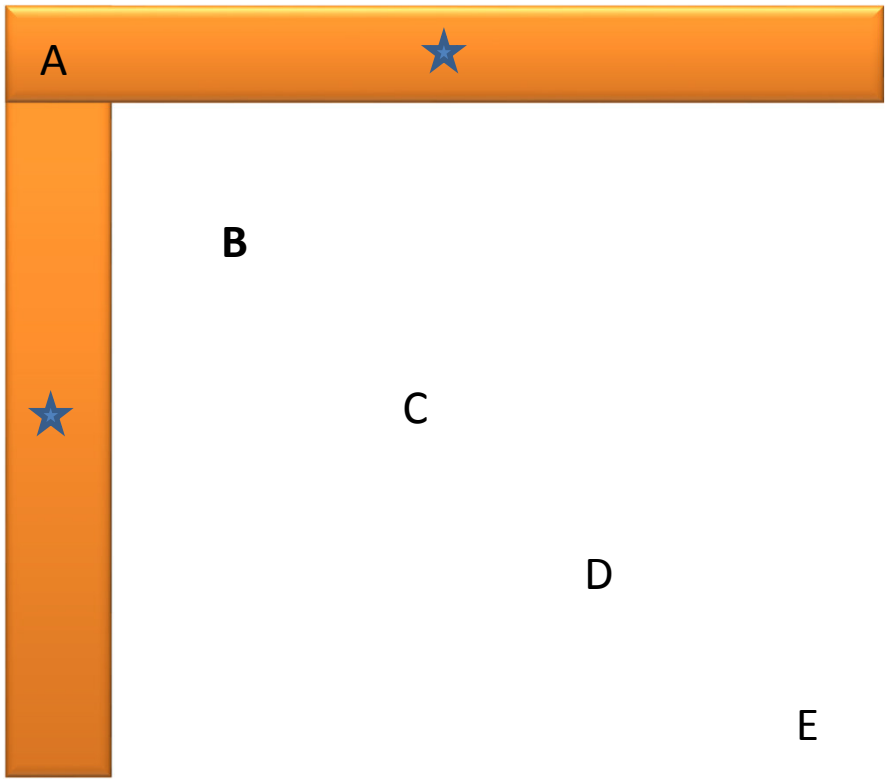


A crude boomerang is constructed by gluing two thin pieces of wood together as shown. Where is the center of mass?



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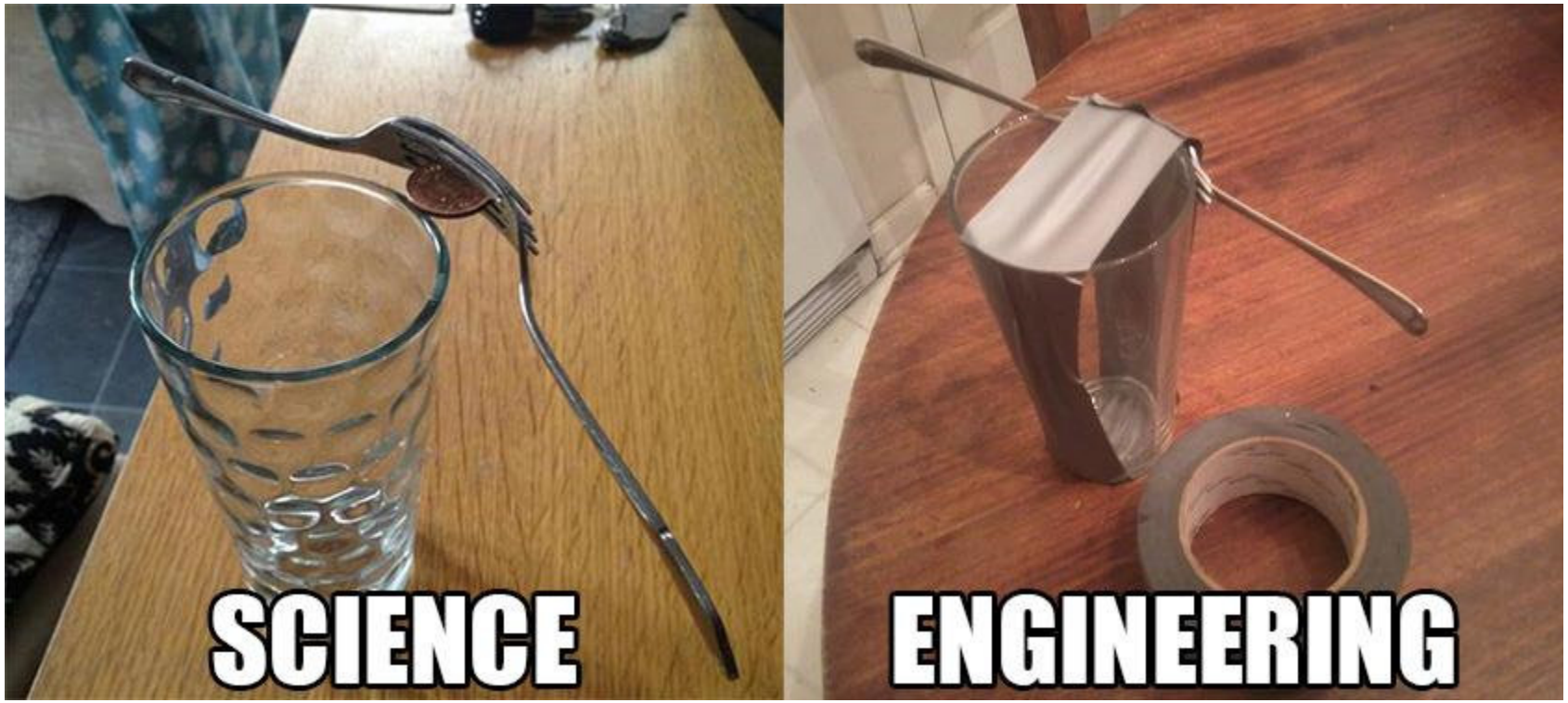
Stars indicate the center of mass for each piece. The center of mass for the whole object is the average of these positions.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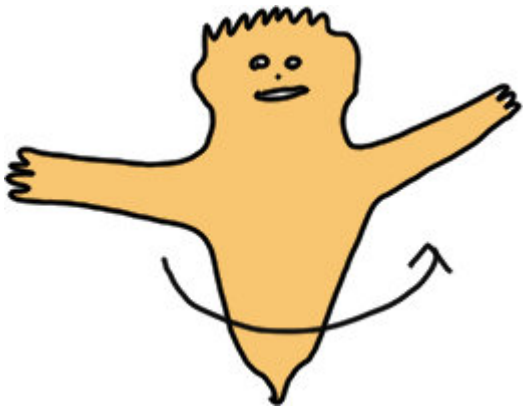
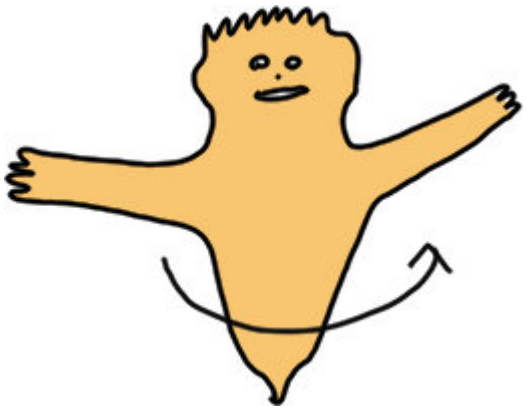


Spinny Troll is spinning counterclockwise, but slowing down. If we say that a clockwise rotation corresponds to an increase in θ, we can say that

A) ω is positive and α is negative
B) ω is negative and α is positive
C) Both ω and α are positive
D) Both ω and α are negative
E) The sign of ω and α cannot be determined from the information provided



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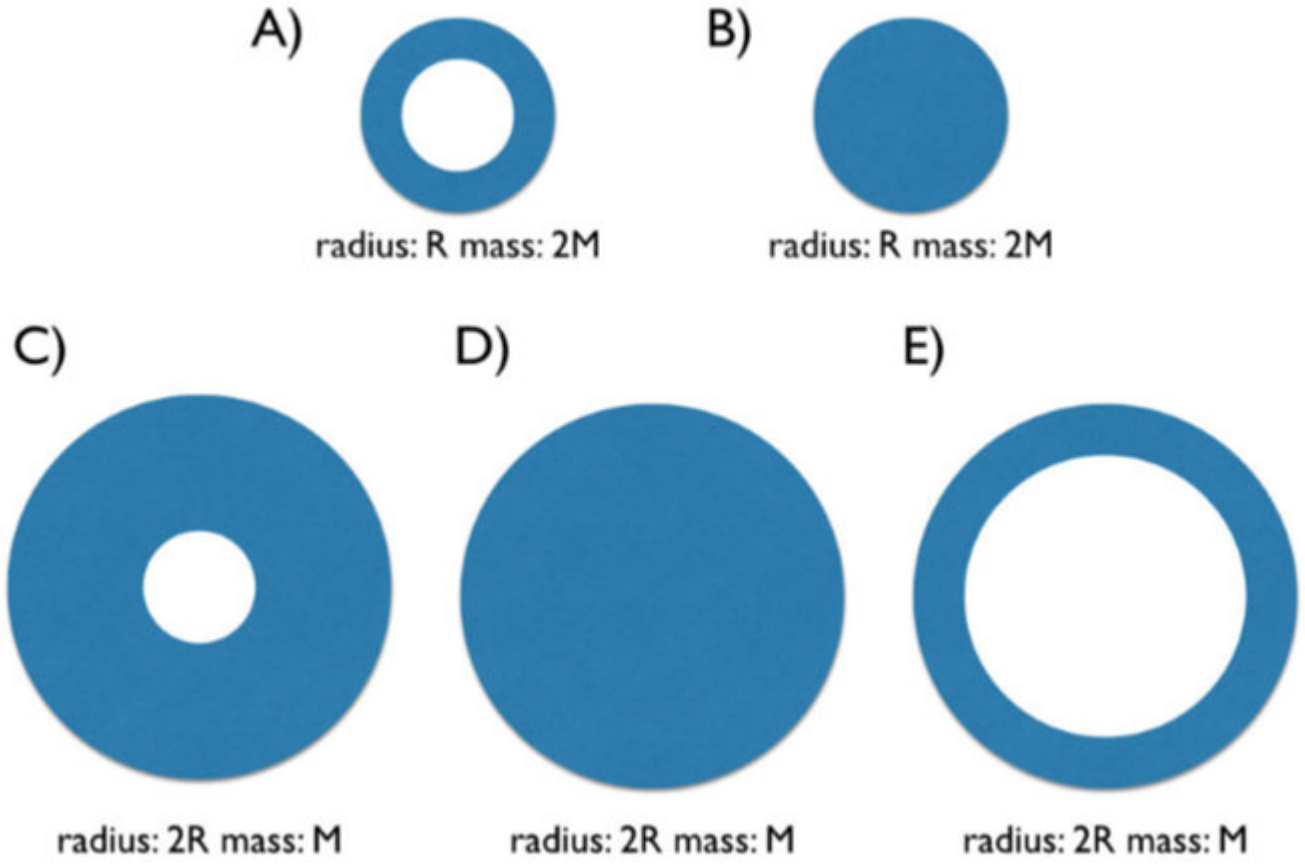
All the objects below are spinning at the same angular velocity. Which has the least angular momentum?



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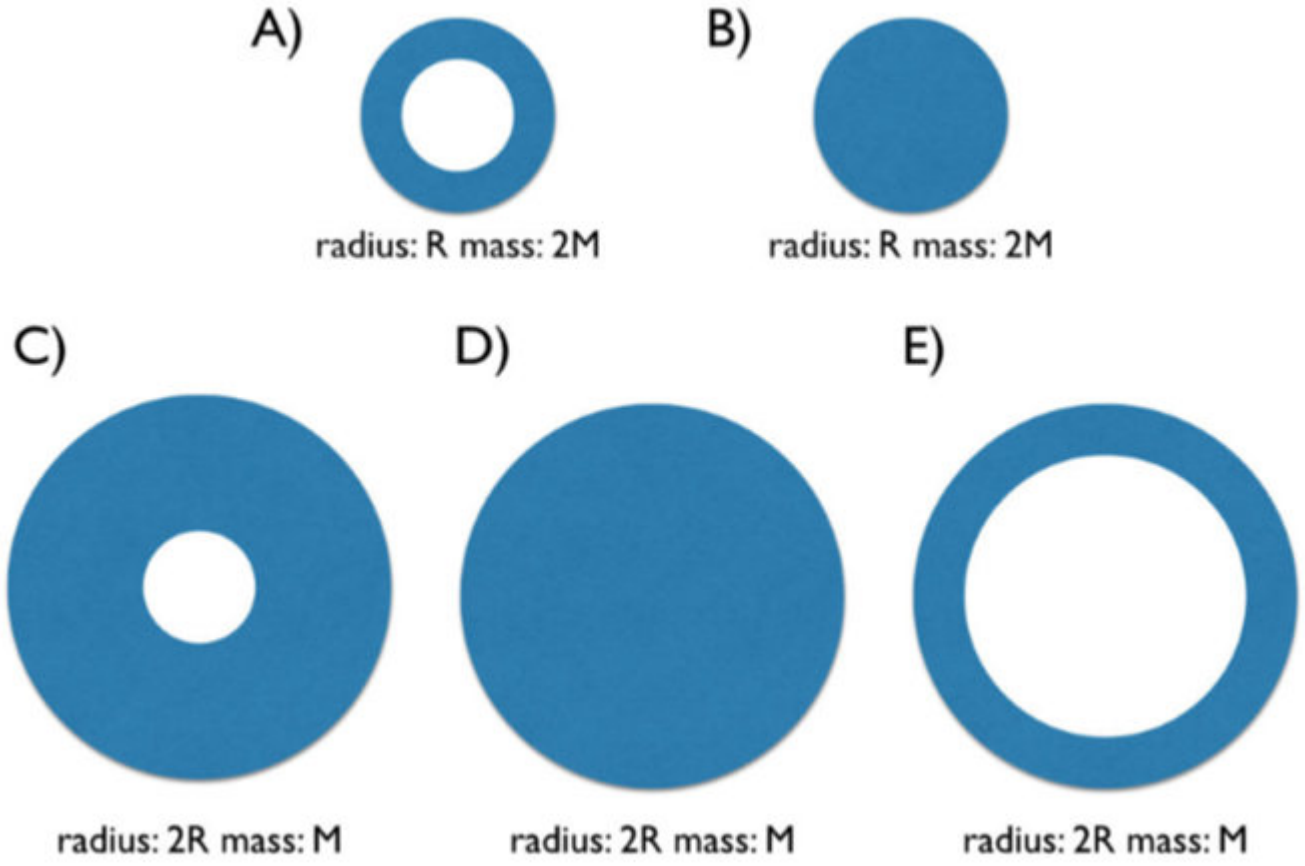

A rotating star shrinks due to gravitational collapse. We can say that its angular velocity

A) Increases
B) Decreases
C) Stays the same

Extra: if the star originally rotates (spins on its axis) once per week and the radius decreases by a factor of 10^4 how long does the final star take to rotate?

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https://www.youtube.com/watch?v=MncUDWhPB_E