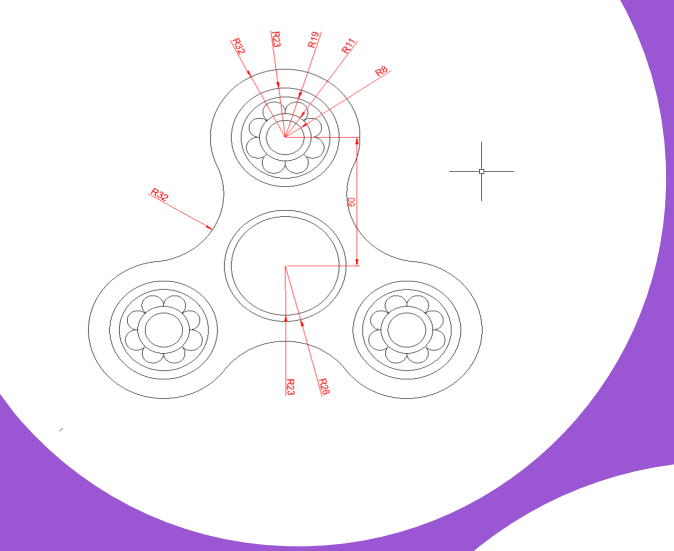
Fidget Spinner AutoCAD Tutorial

Suitable for Grades 8-9

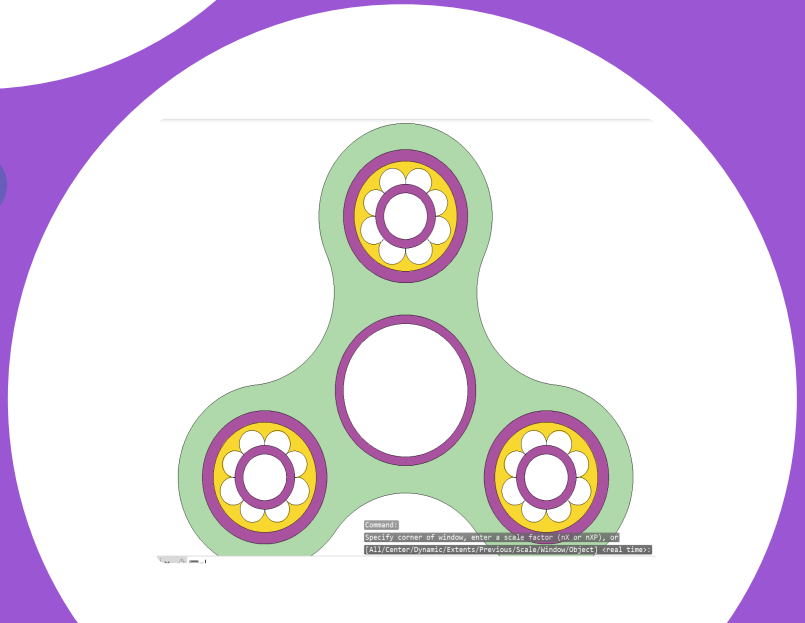
In This Tutorial You Will Learn…

- How to draw a fidget spinner on AutoCAD!
- You will be using the following commands:

  - CIRCLE
  - LINE
  - TRIM
  - MIRROR
  - DIMLIN/DIMRAD
  - HATCH
  - LAYERS



Today You Will Be Making…
A Fidget Spinner!

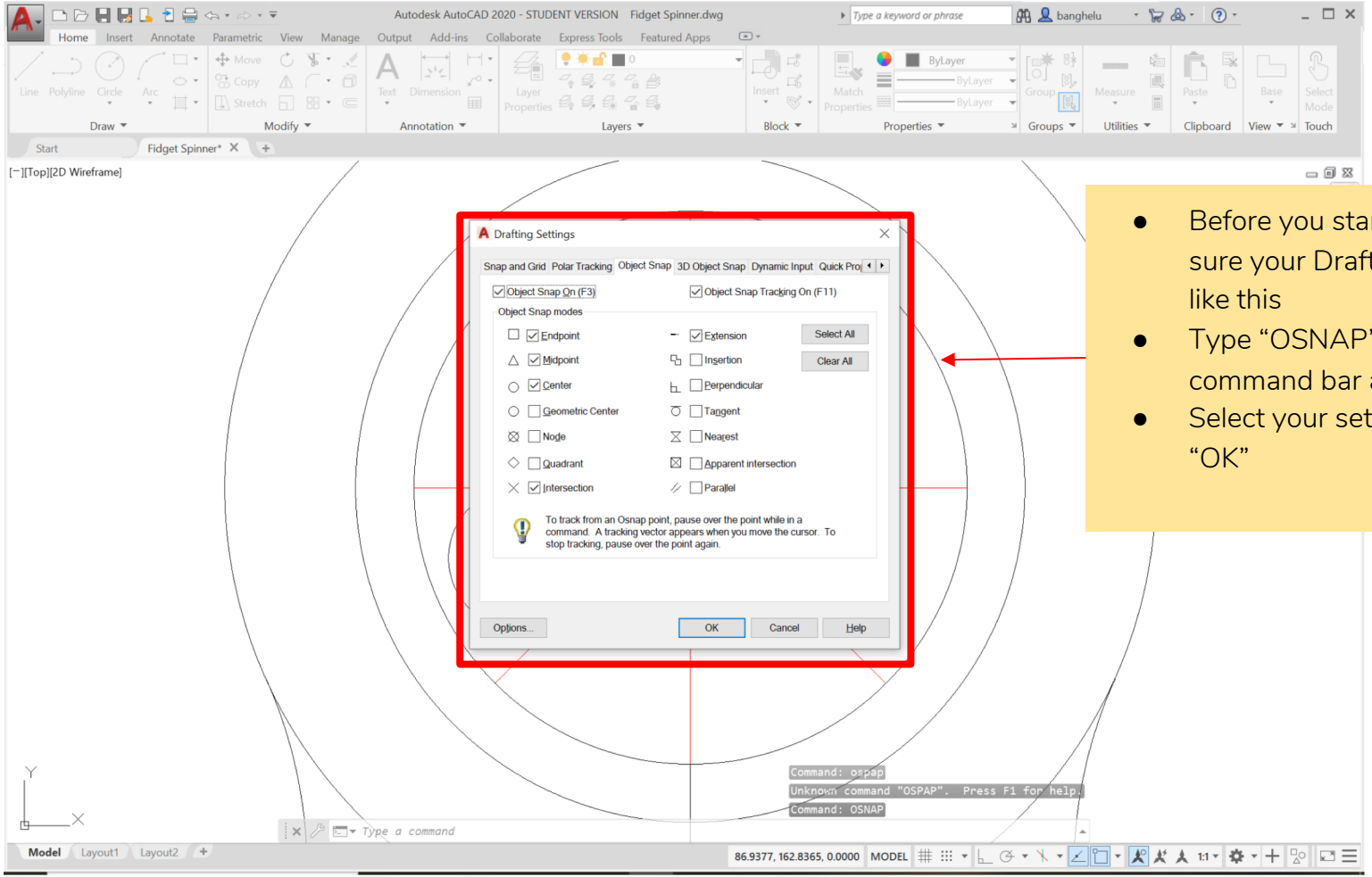


Let’s Get Started!

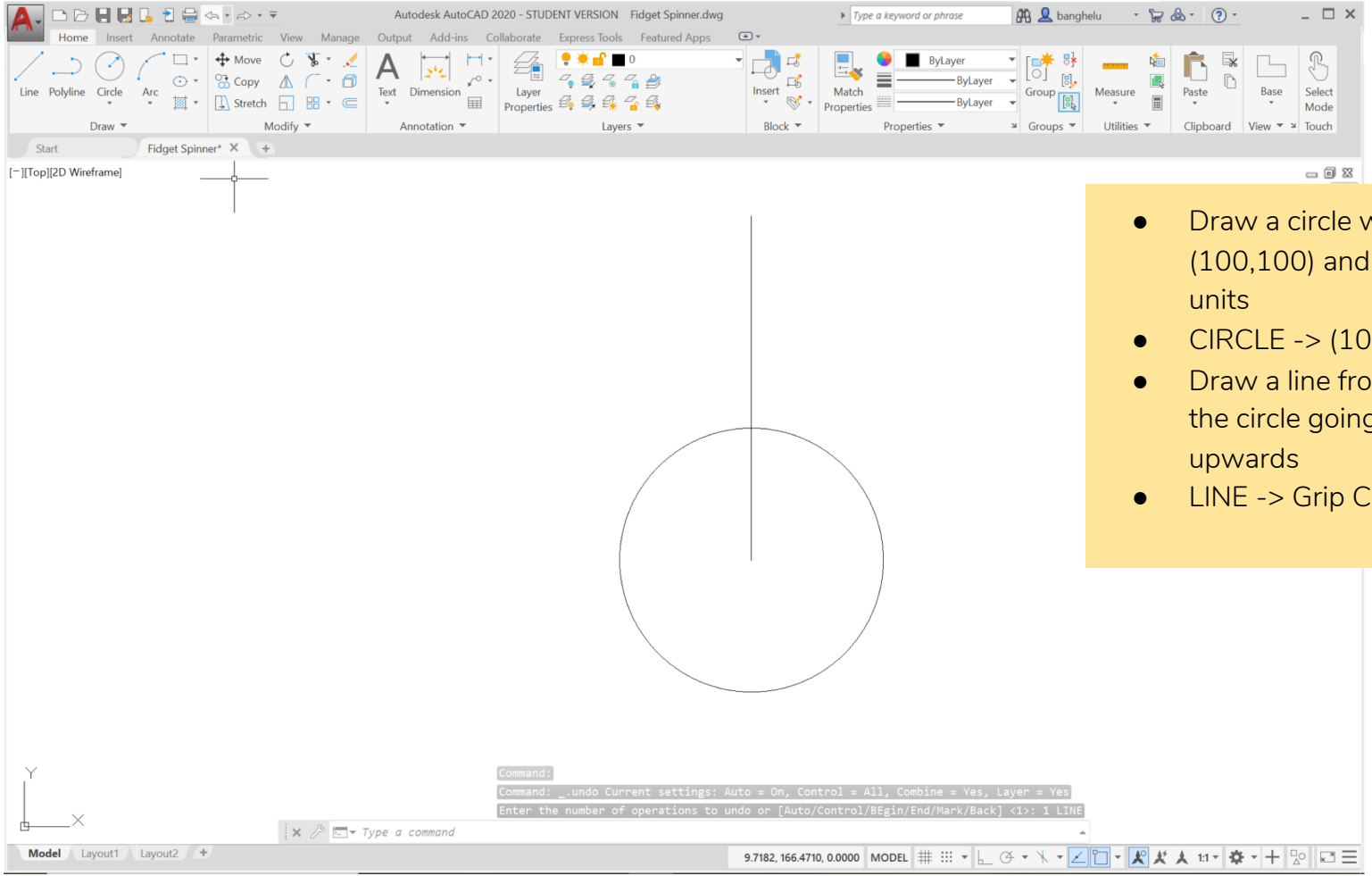
- This tutorial shows step-by-step how we created the fidget spinner on the previous slide
- You do not have to follow this tutorial exactly!
- If you want, come up with your own fidget spinner design and use this tutorial as a guide as to how you can create it
- Or, follow this tutorial and pick what colours you want your fidget spinner to be
- Check out the “AutoCAD Commands Cheat-Sheet” for more commands than the ones we use here

Remember to save your drawing at the beginning of the tutorial using the SAVEAS command

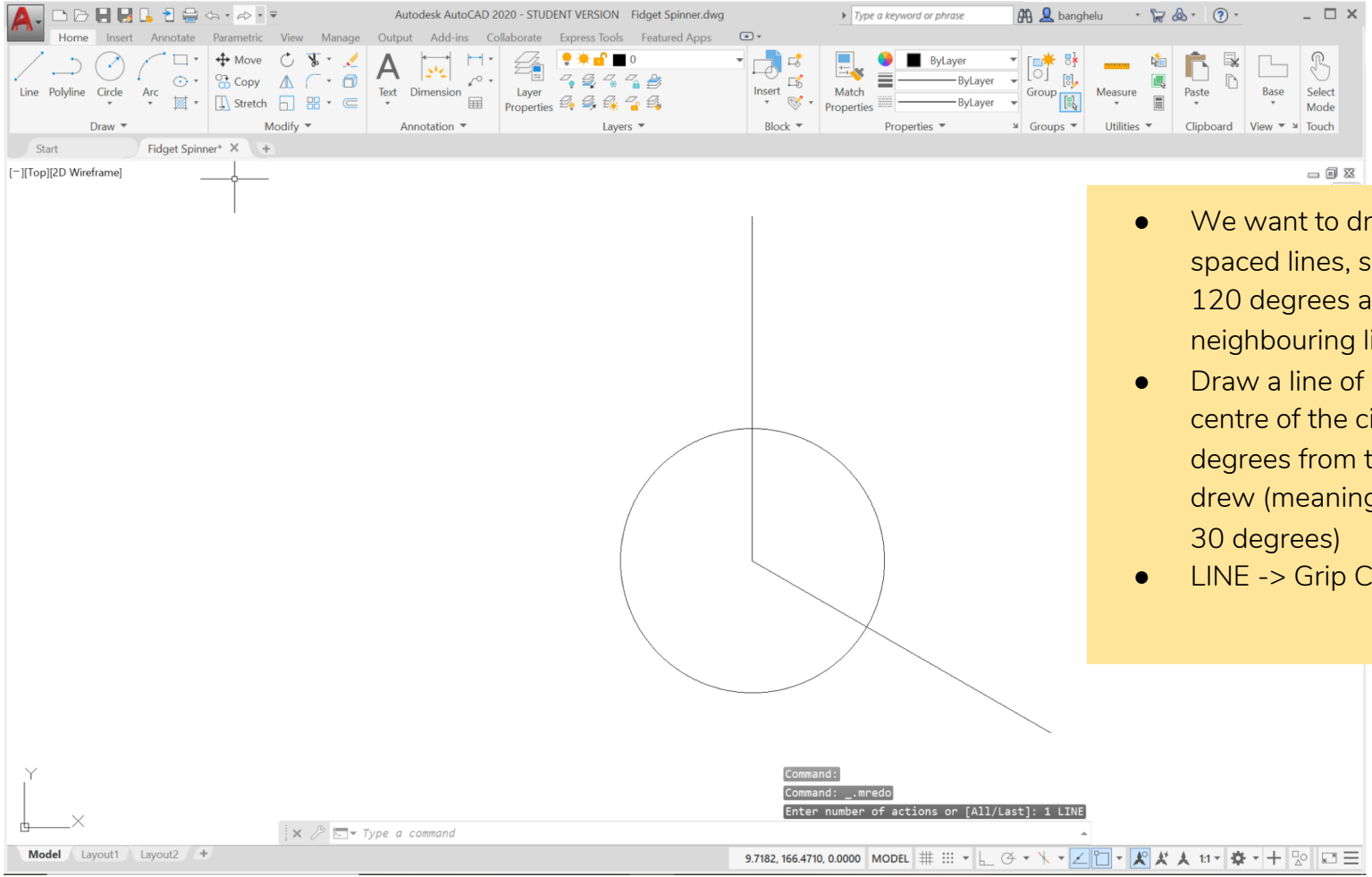
Save your drawing periodically throughout this tutorial using the SAVE command



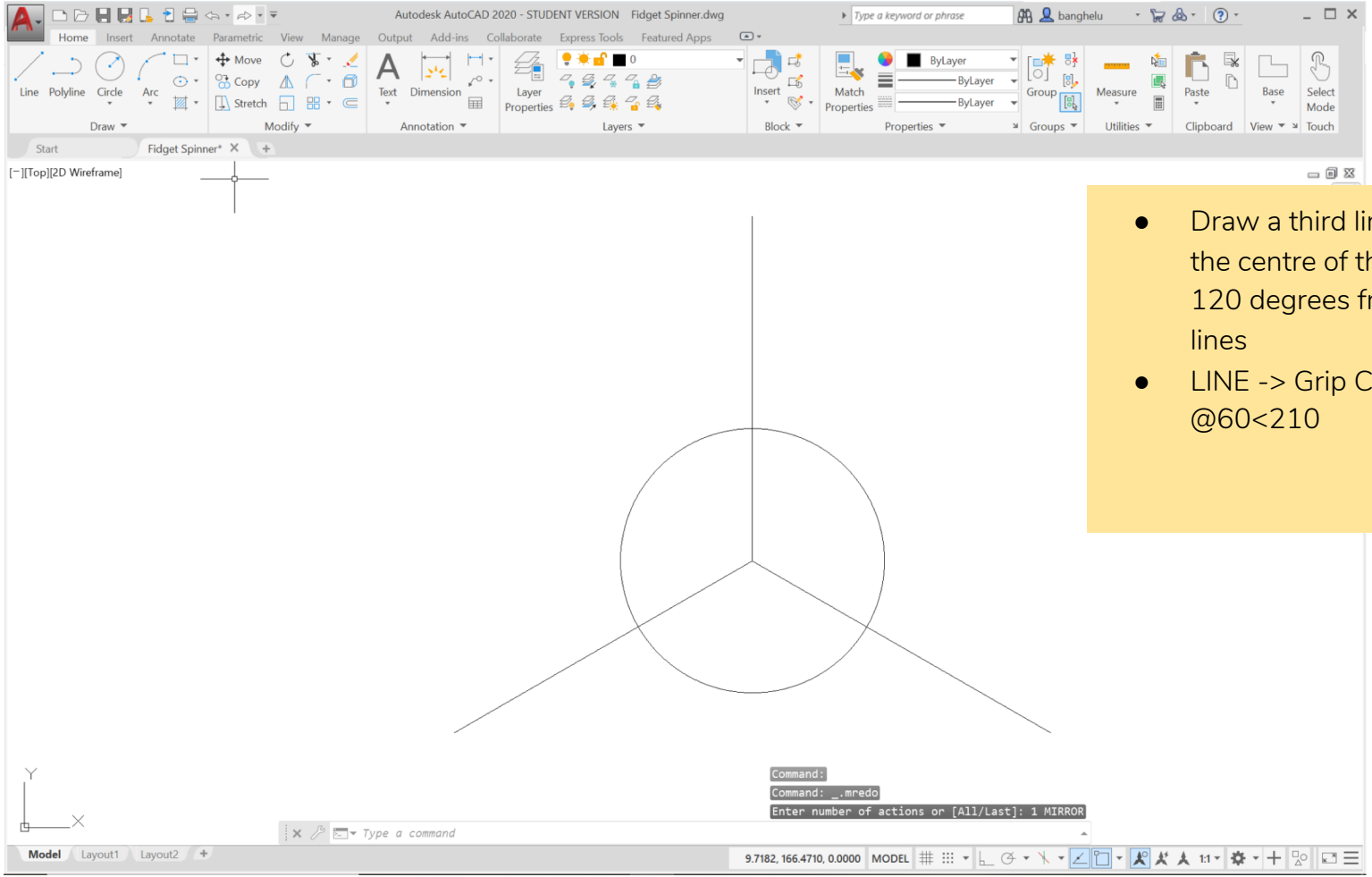
- Before you start drawing, make sure your Drafting Settings look like this
- Type “OSNAP” into the command bar and press enter
- Select your settings and click “OK”



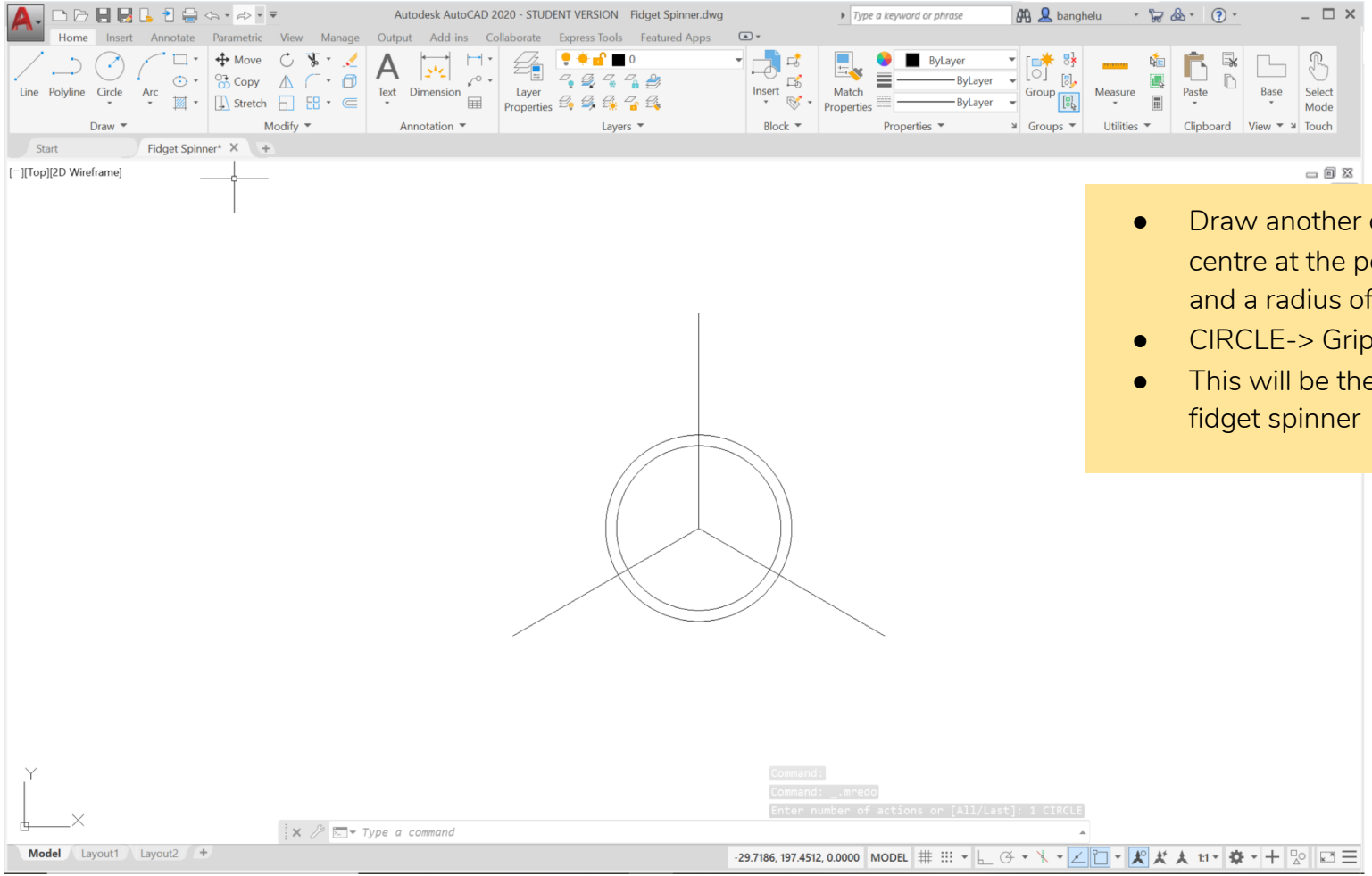
- Draw a circle with its centre at (100,100) and a radius of 23 units
- CIRCLE -> (100,100) -> 23
- Draw a line from the centre of the circle going 60 units upwards
- LINE -> Grip Centre -> @60<90



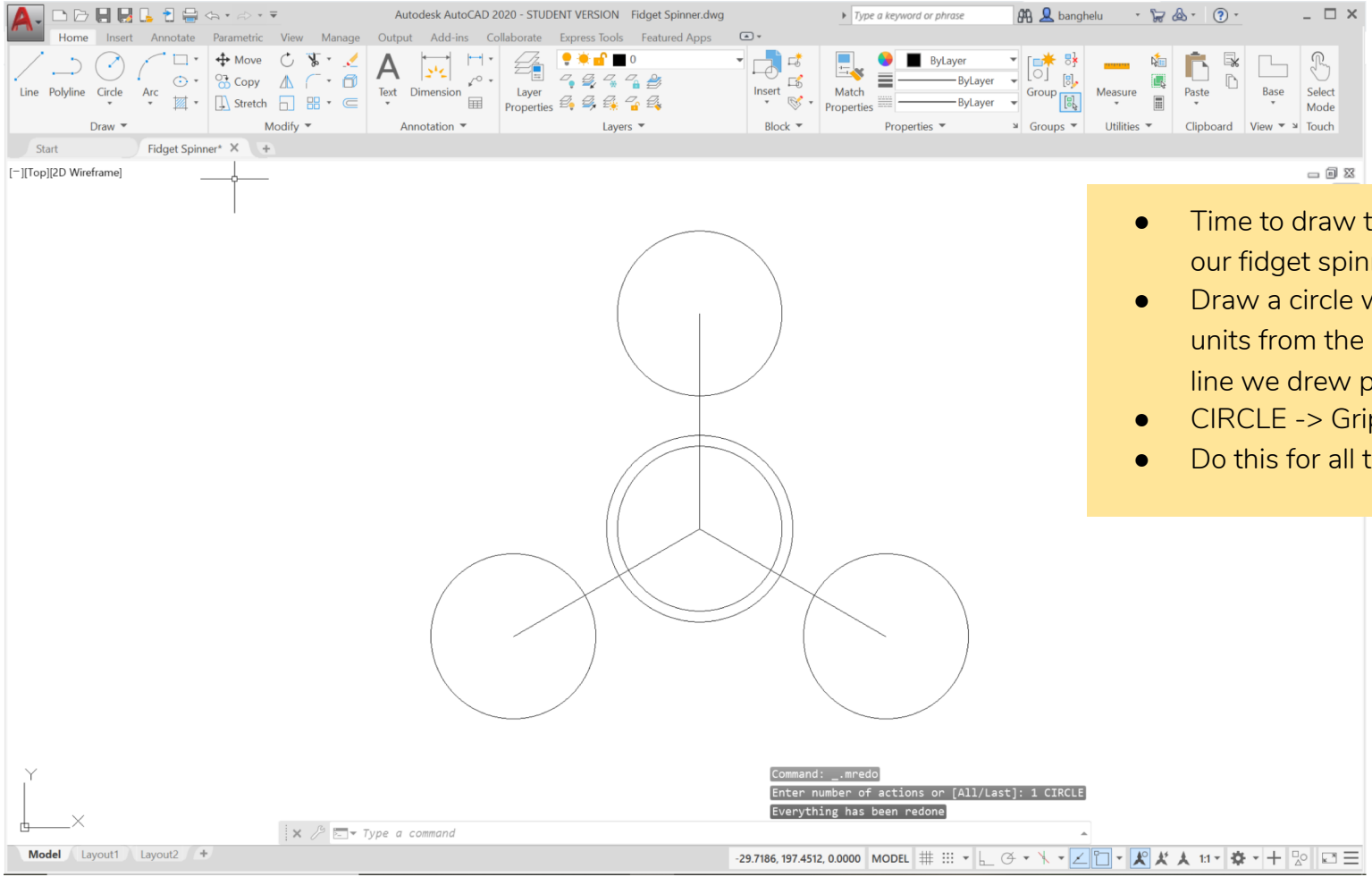
- We want to draw three evenly spaced lines, so each line will be 120 degrees away from its neighbouring line
- Draw a line of 60 units, from the centre of the circle, that is 120 degrees from the first line you drew (meaning it is as 330 or -30 degrees)
- LINE -> Grip Centre -> @60<-30



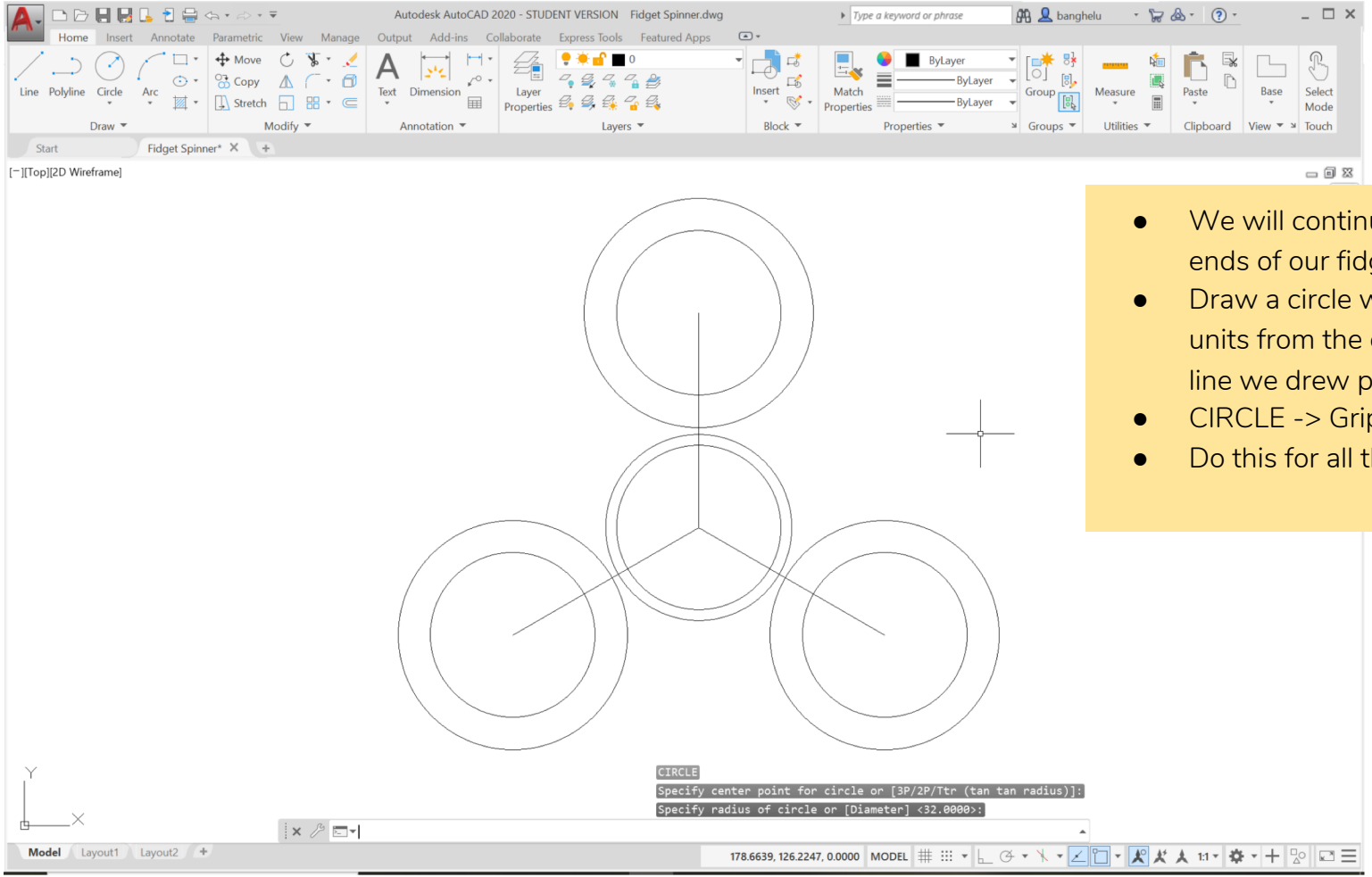
- Draw a third line of 60 units from the centre of the circle that is 120 degrees from the other two lines
- LINE -> Grip Centre -> @60<210



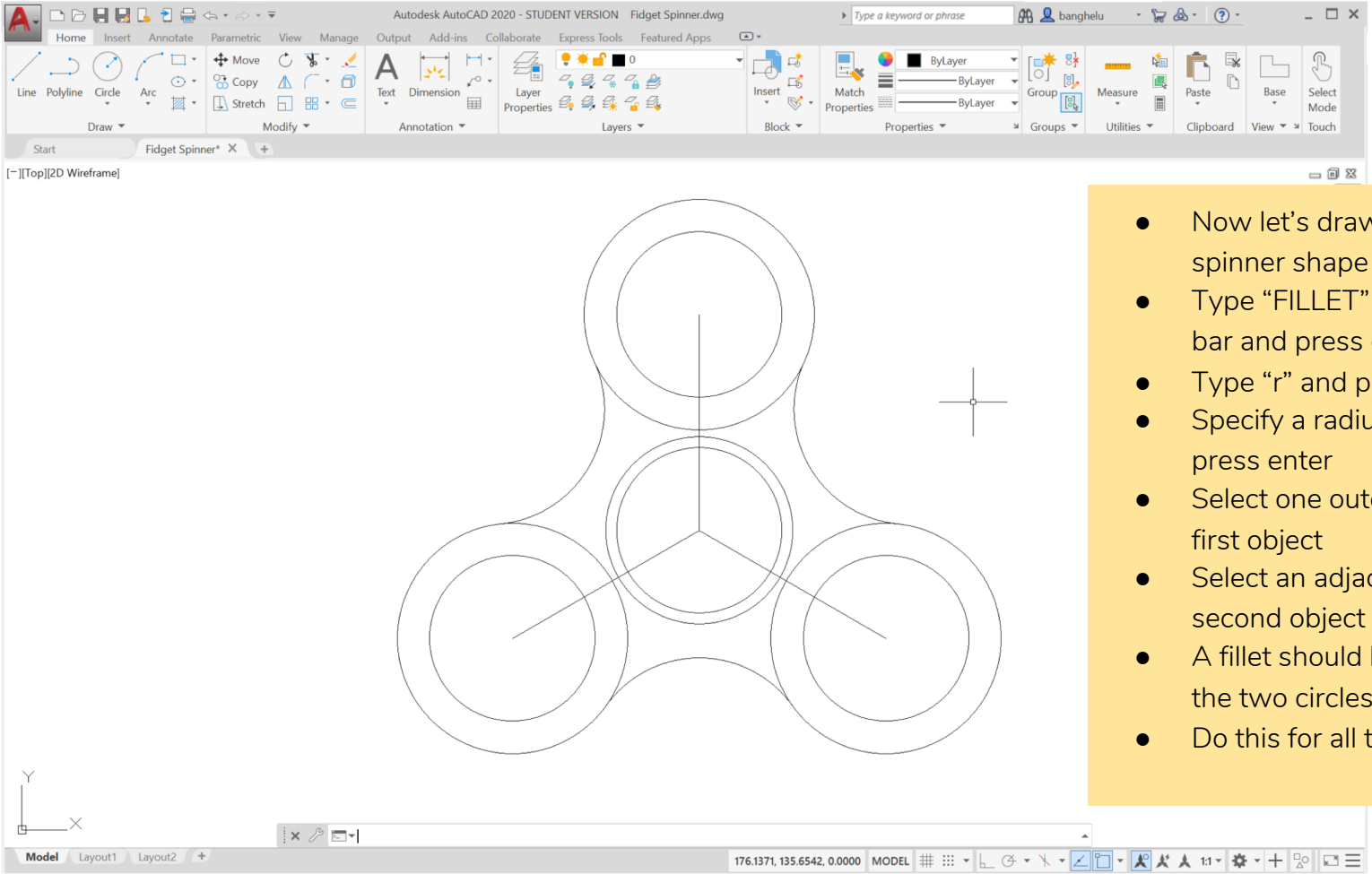
- Draw another circle with its centre at the point (100,100) and a radius of 26 units
- CIRCLE-> Grip Centre -> 26
- This will be the centre of your fidget spinner



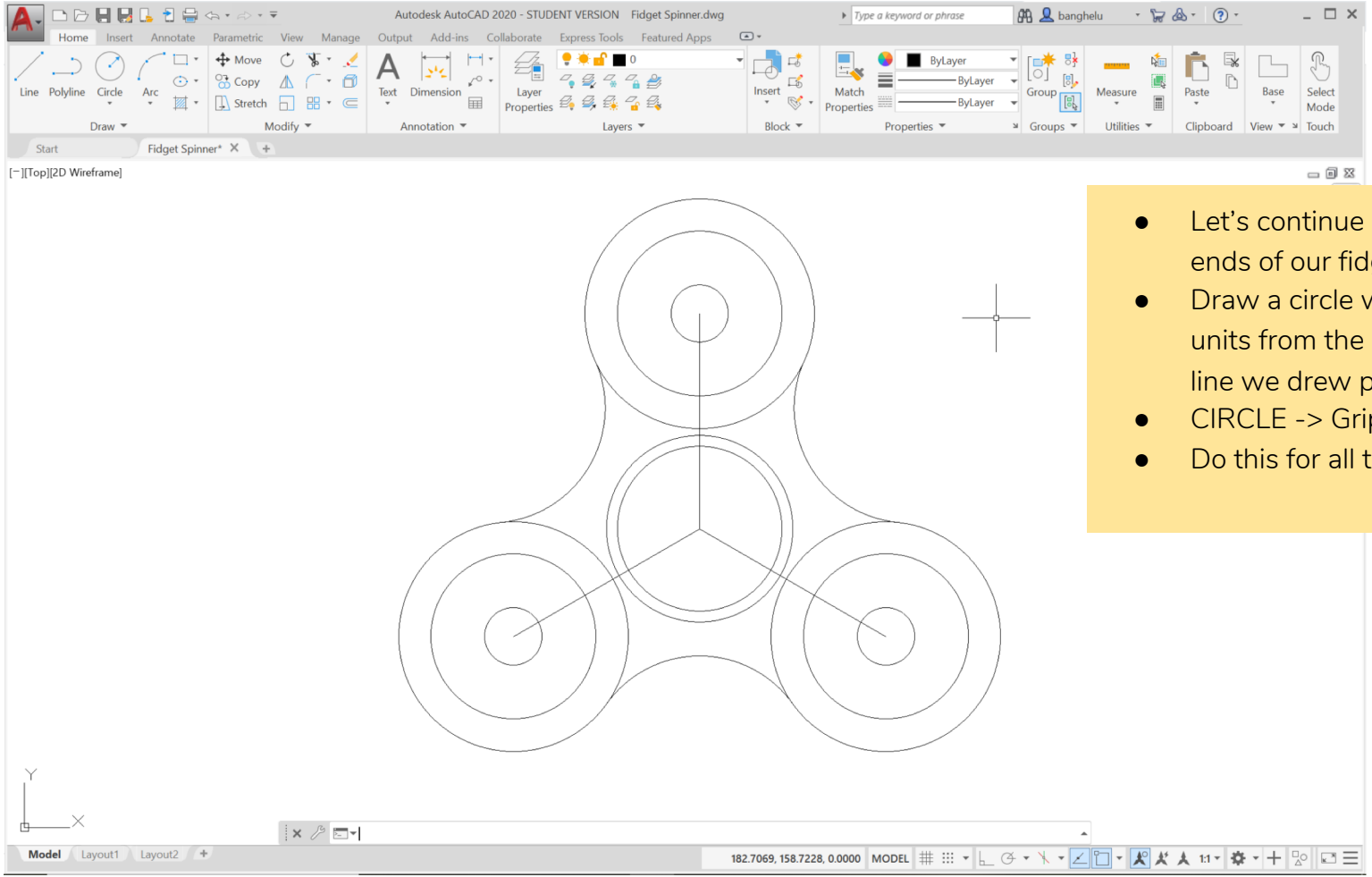
- Time to draw the three ends of our fidget spinner
- Draw a circle with a radius of 23 units from the endpoint of each line we drew previously
- CIRCLE -> Grip endpoint -> 23
- Do this for all three lines



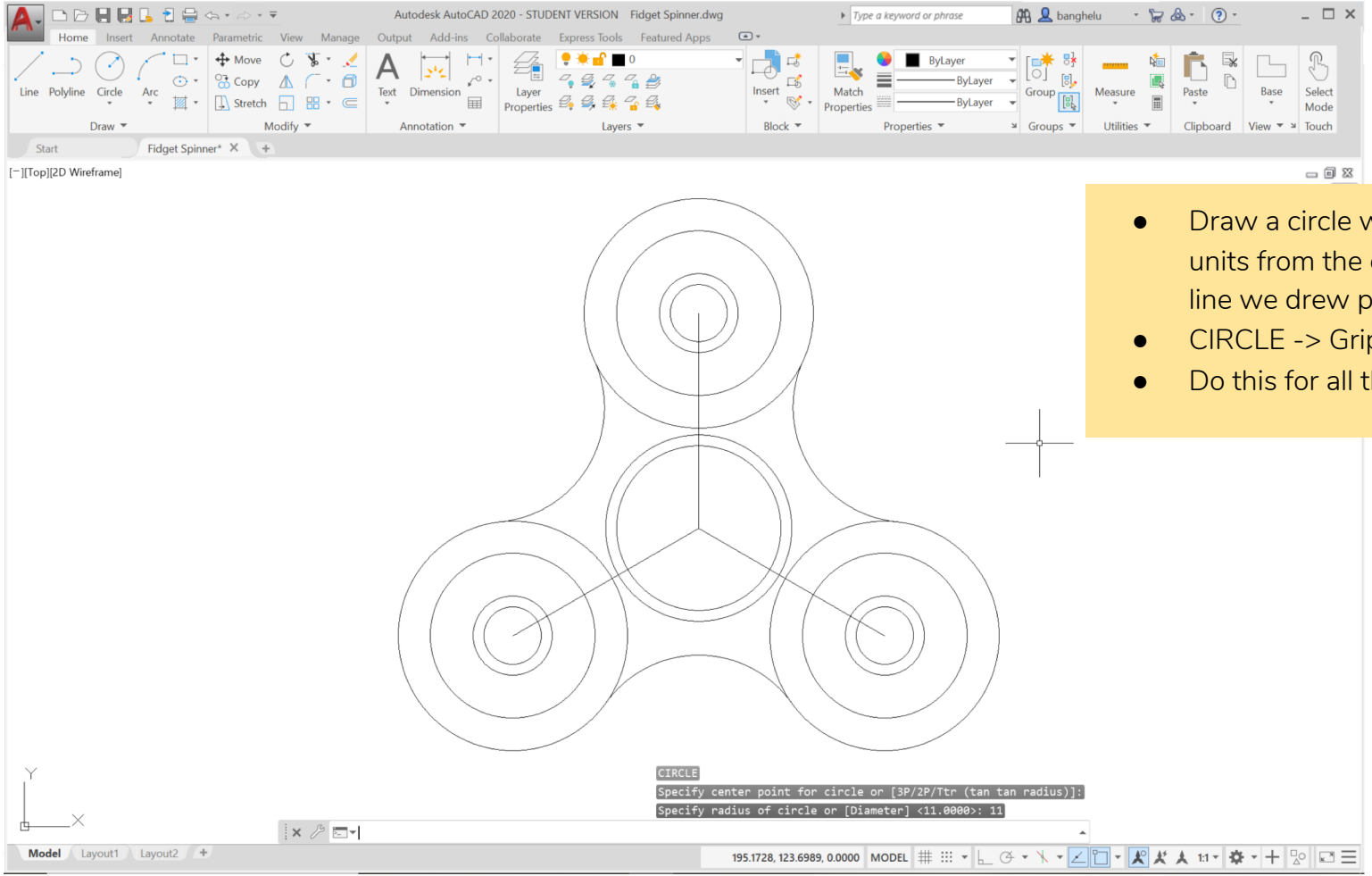
- We will continue with the three ends of our fidget spinner
- Draw a circle with a radius of 32 units from the endpoint of each line we drew previously
- CIRCLE -> Grip endpoint -> 32
- Do this for all three lines



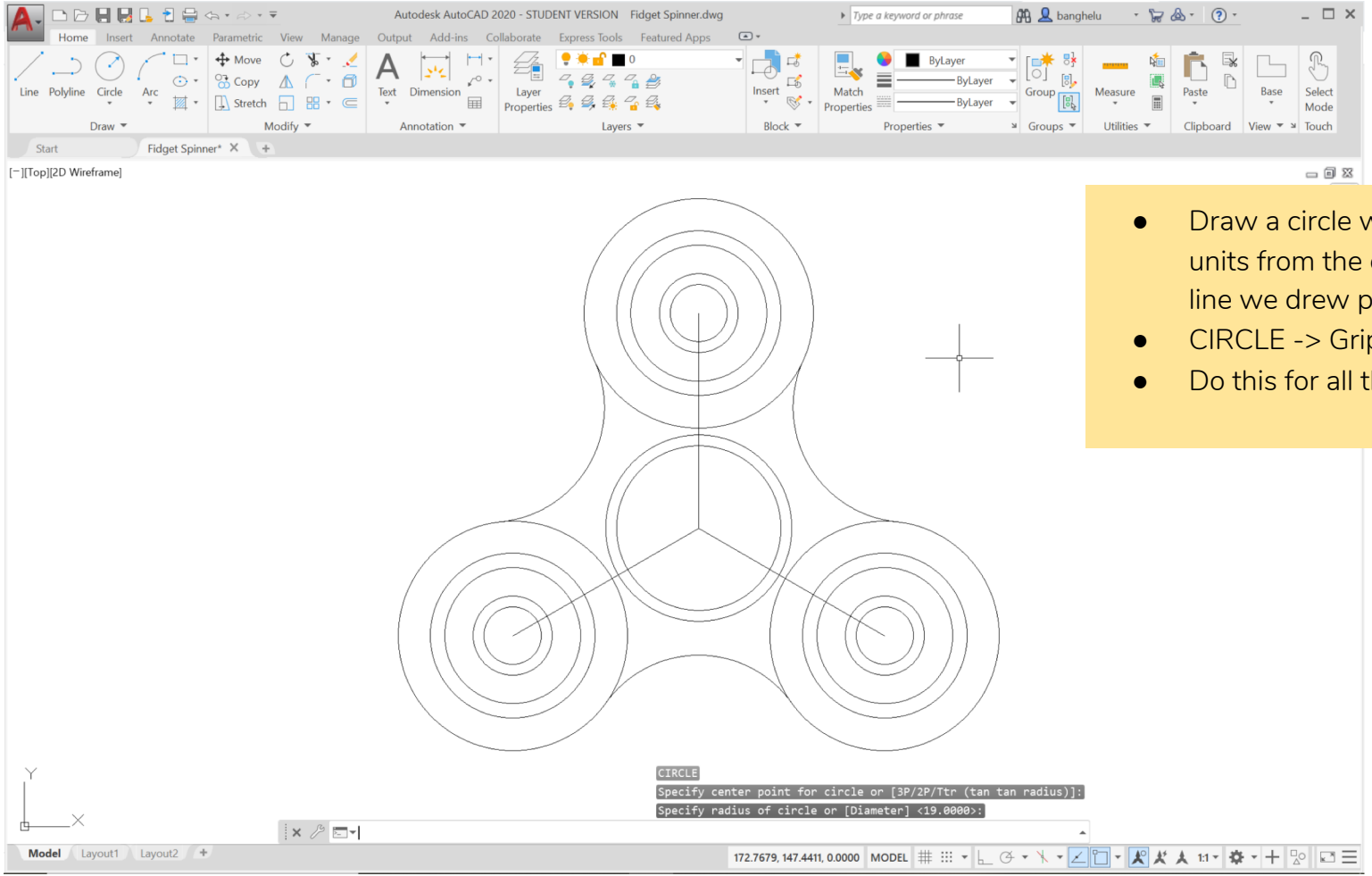
- Now let's draw the classic fidget spinner shape using FILLET
- Type "FILLET" into the command bar and press enter
- Type "r" and press enter
- Specify a radius of 32 units and press enter
- Select one outer circle as your first object
- Select an adjacent circle as your second object
- A fillet should be made between the two circles
- Do this for all three sides



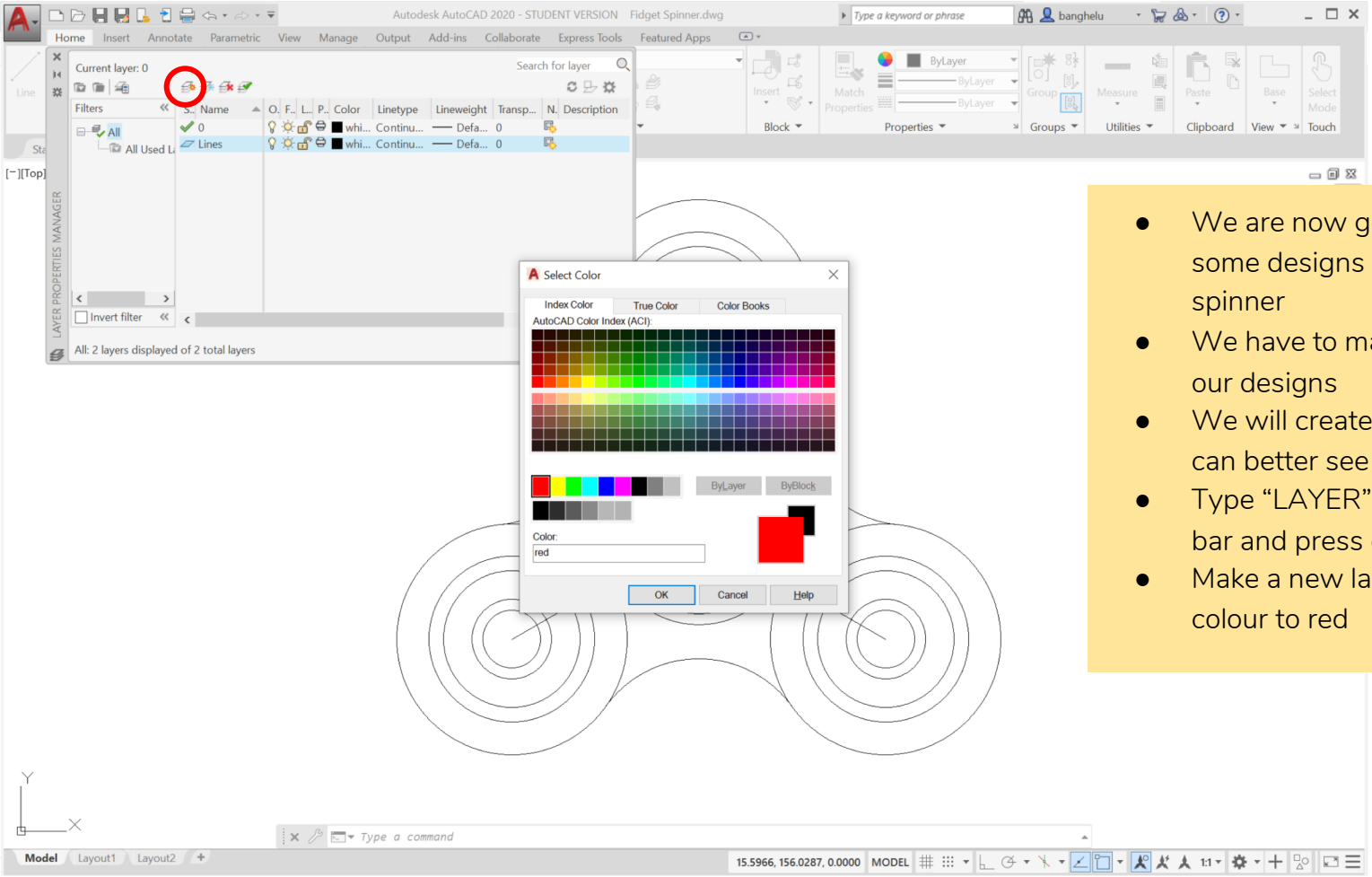
- Let's continue making the three ends of our fidget spinner
- Draw a circle with a radius of 8 units from the endpoint of each line we drew previously
- CIRCLE -> Grip endpoint -> 8
- Do this for all three lines



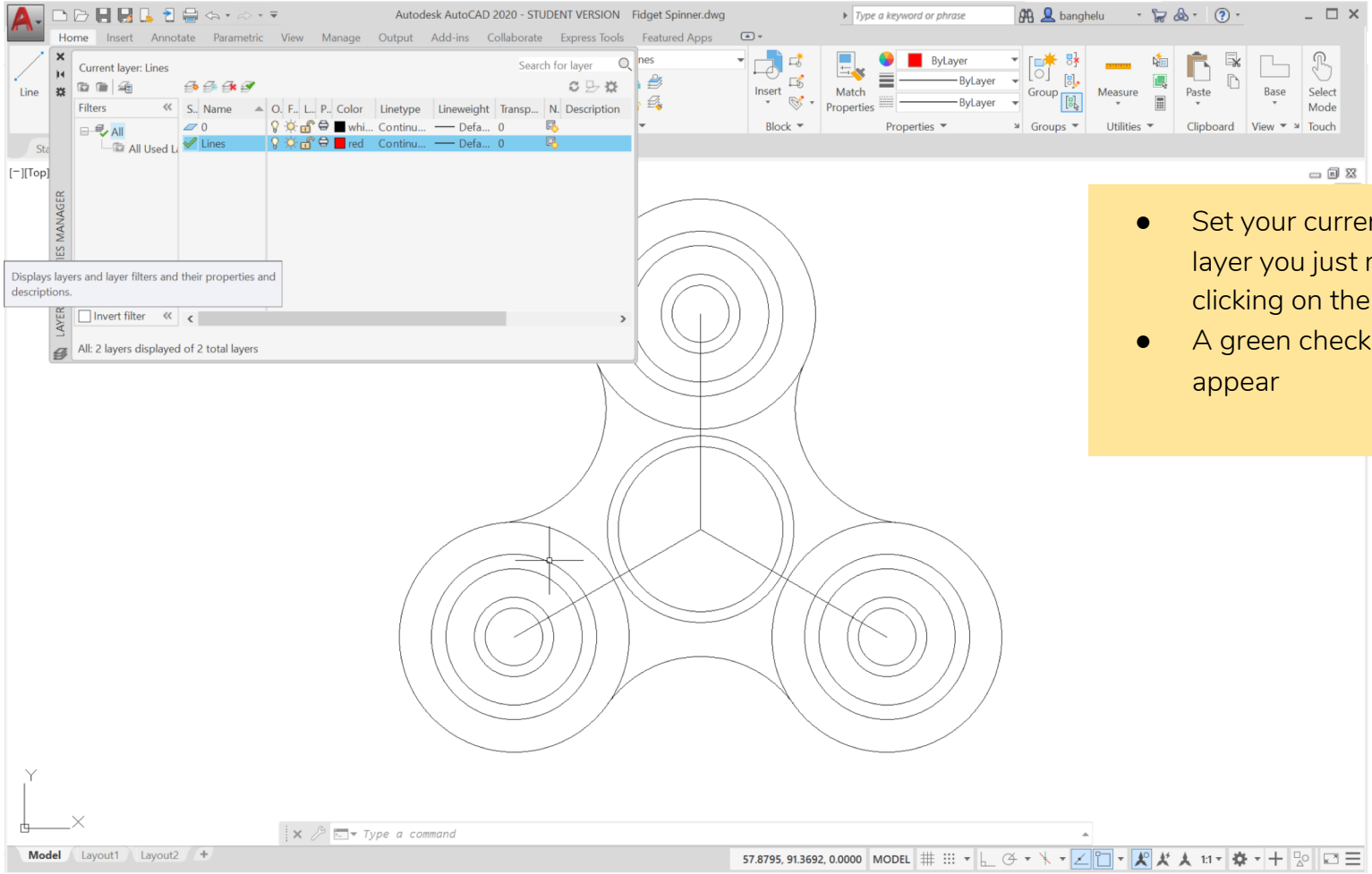
- Draw a circle with a radius of 11 units from the endpoint of each line we drew previously
- CIRCLE -> Grip endpoint -> 11
- Do this for all three lines



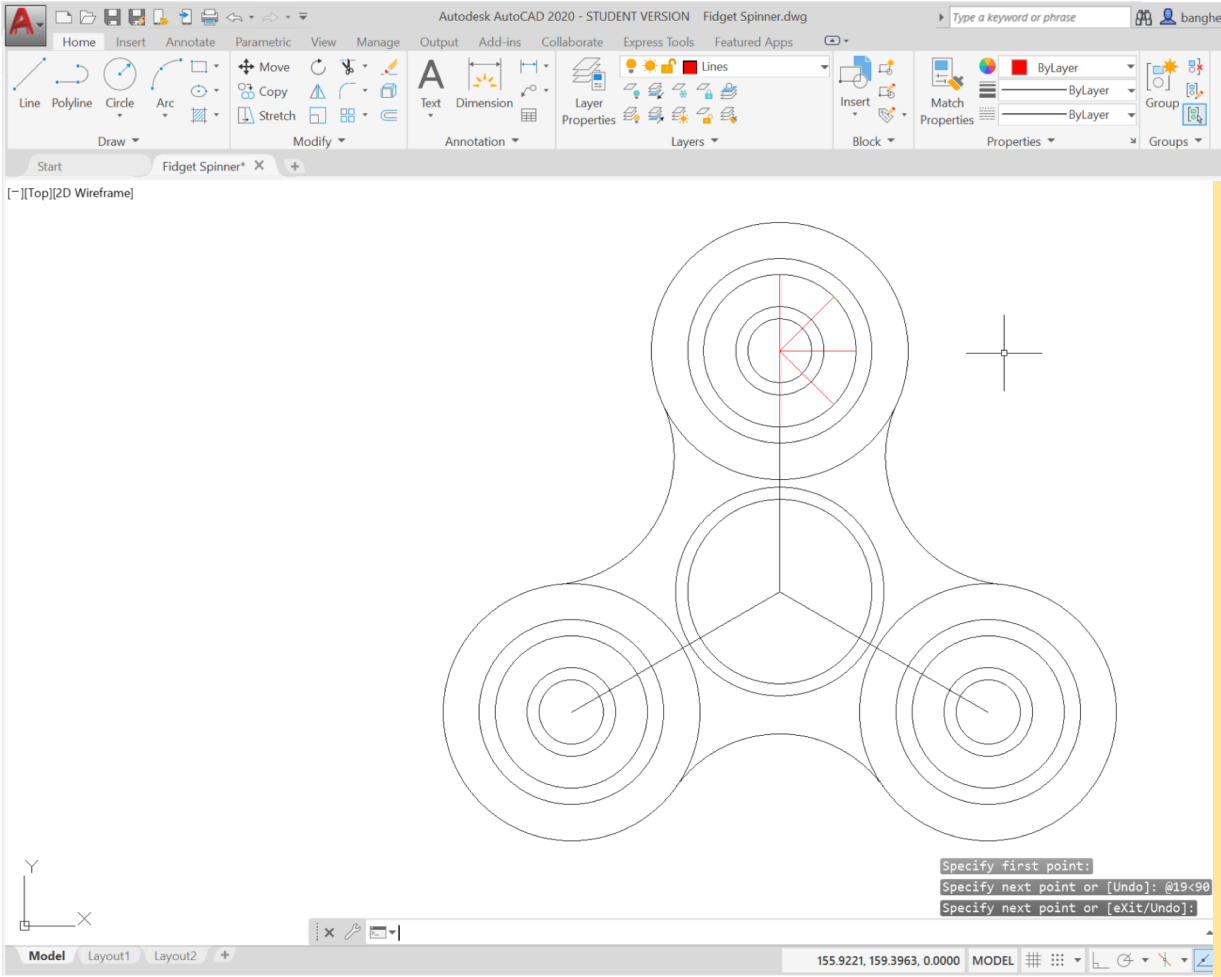
- Draw a circle with a radius of 19 units from the endpoint of each line we drew previously
- CIRCLE -> Grip endpoint -> 19
- Do this for all three lines



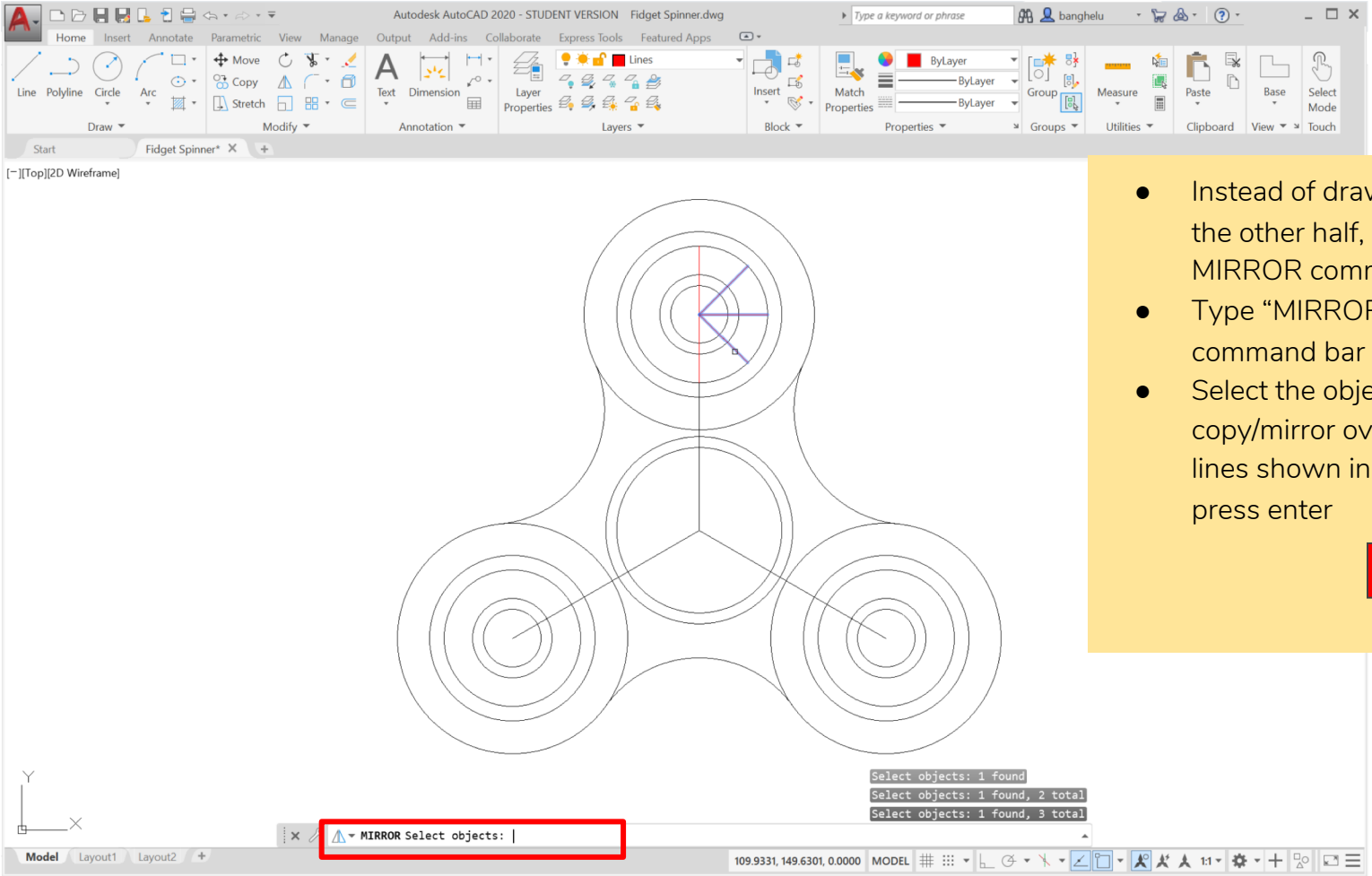
- We are now going to be making some designs on our fidget spinner
- We have to make guidelines for our designs
- We will create a new layer so we can better see our guidelines
- Type “LAYER” into the command bar and press enter
- Make a new layer and change its colour to red



- Set your current layer to the new layer you just made by double clicking on the layer
- A green check mark should appear



- We are going to make 8 semi-circles to decorate each end of the fidget spinner
- We need to make some guidelines to help us to this
- We need to draw 8 lines each, 45 degrees apart, to outline where our semi-circles will go
- We will draw one half and MIRROR it to the other side
- Start with one circle and draw the following lines:
- LINE -> Grip Endpoint ->
  @19<90
  @19<45
  @19<0
  @19<-45
  @19<-90



- Instead of drawing more lines on the other half, we can use the MIRROR command
- Type “MIRROR” into the command bar and press enter
- Select the objects you want to copy/mirror over (select the three lines shown in the picture) and press enter

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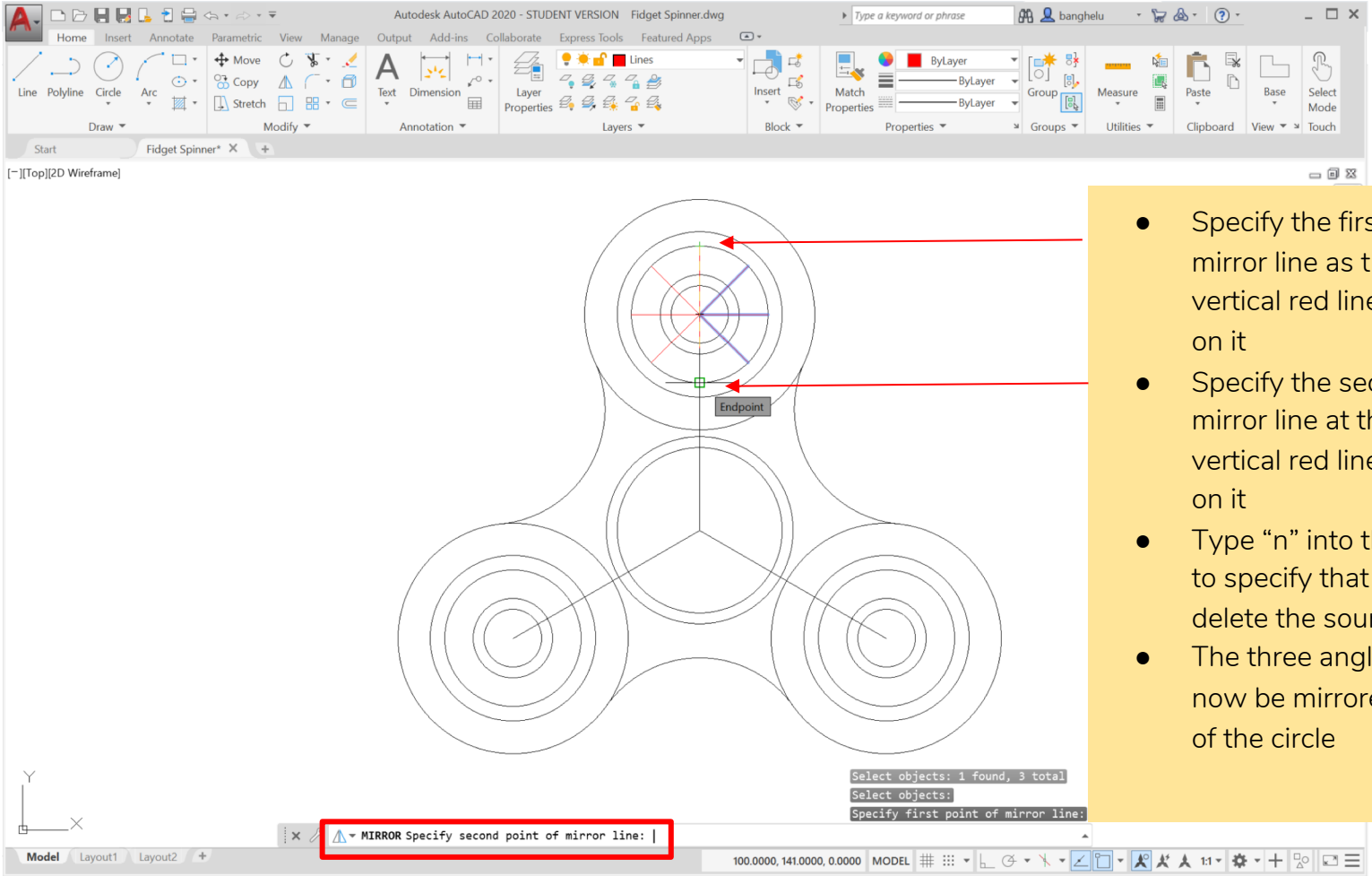
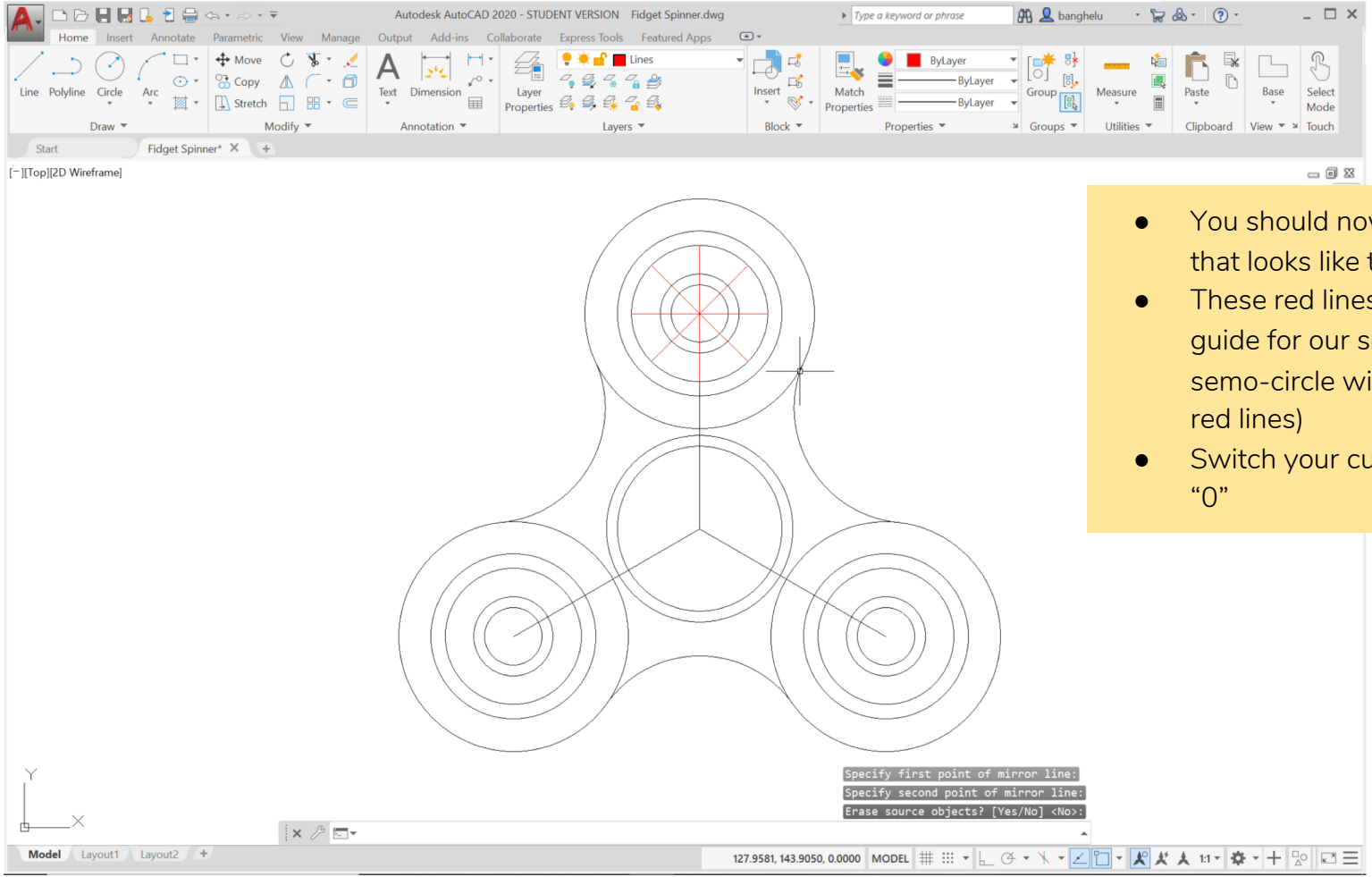
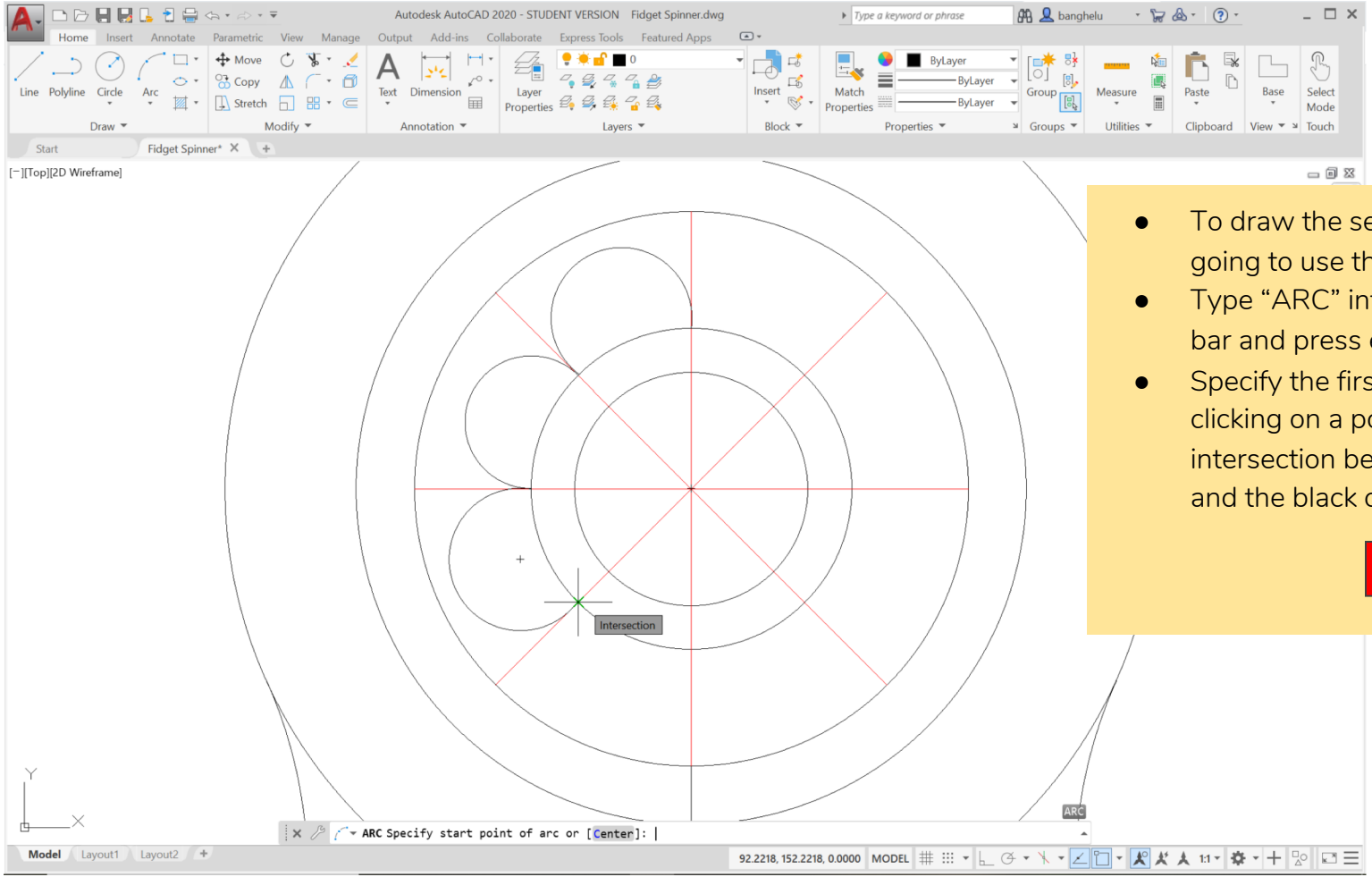


- Specify the first point of the mirror line as the top of the vertical red line by clicking down on it
- Specify the second point of the mirror line at the bottom of the vertical red line by clicking down on it
- Type “n” into the command bar to specify that we do not want to delete the source objects
- The three angled red lines should now be mirrored to the other half of the circle



- You should now have something that looks like this
- These red lines will act as a guide for our semi-circles (one semo-circle will go between two red lines)
- Switch your current layer back to “0”



- To draw the semi-circles, we are going to use the ARC command
- Type “ARC” into the command bar and press enter
- Specify the first endpoint by clicking on a point (select the intersection between the red line and the black circle)

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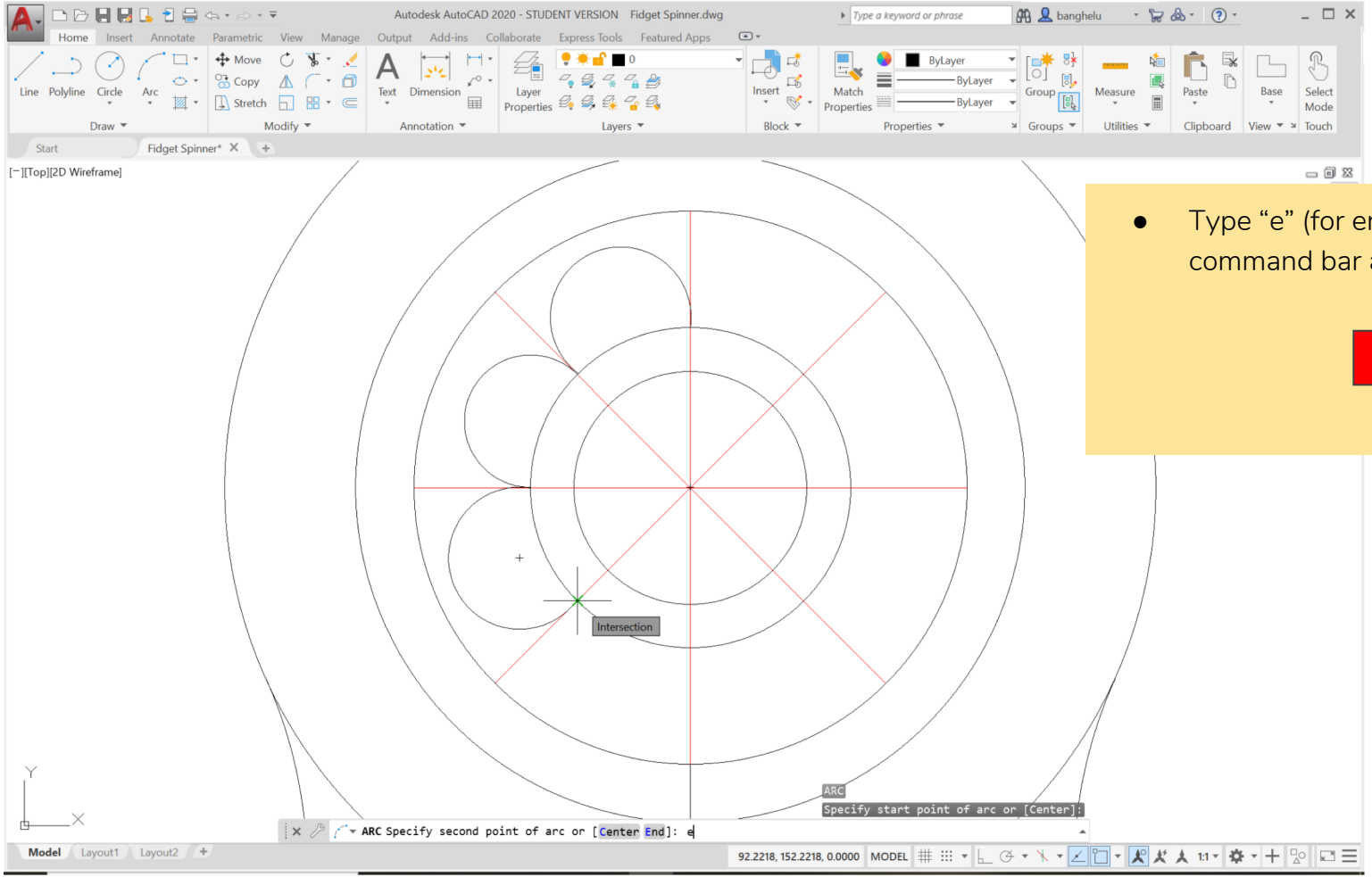

- Type “e” (for endpoint) into the command bar and press enter

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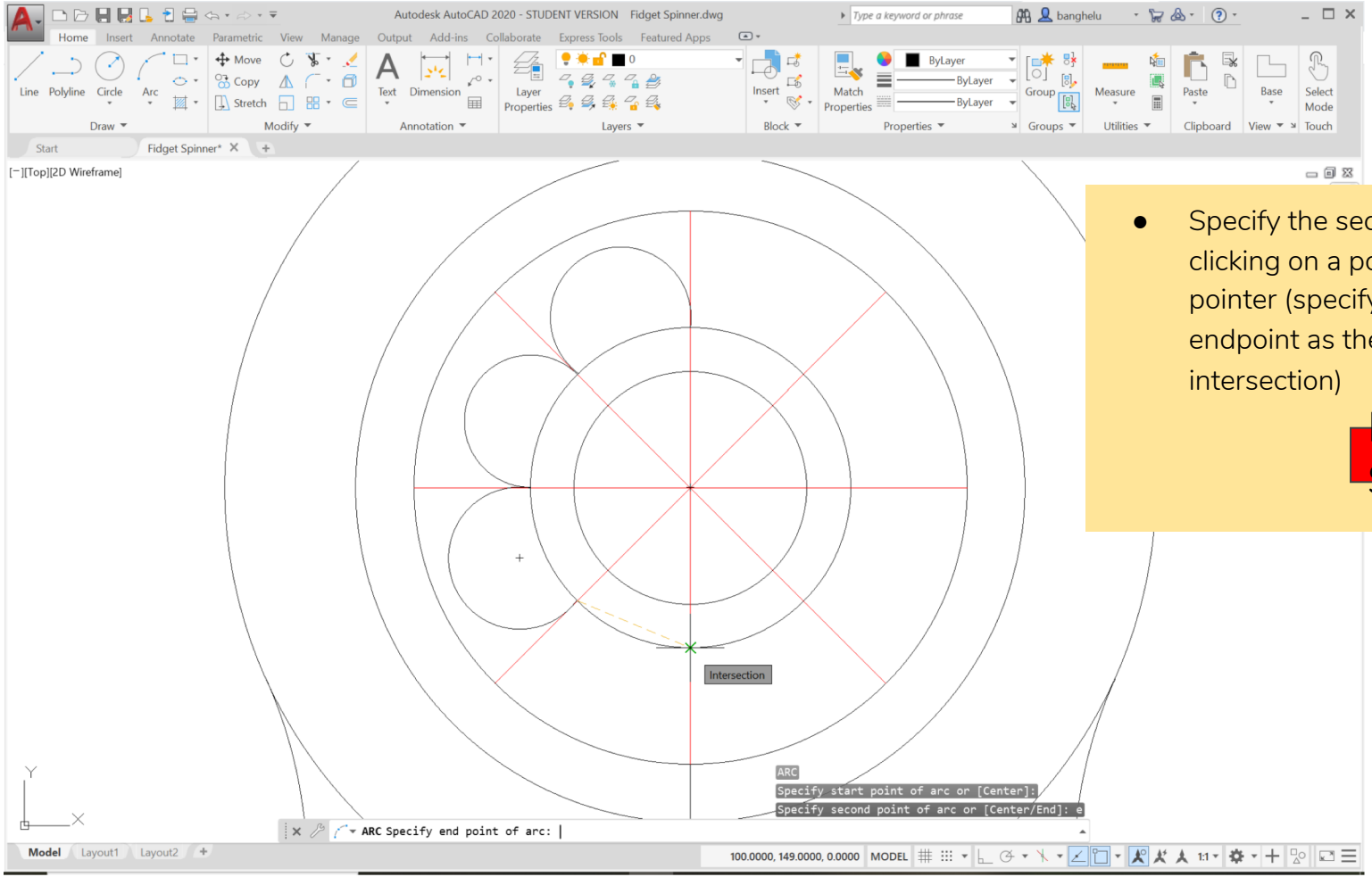

- Specify the second endpoint by clicking on a point with your pointer (specify the second endpoint as the next intersection)

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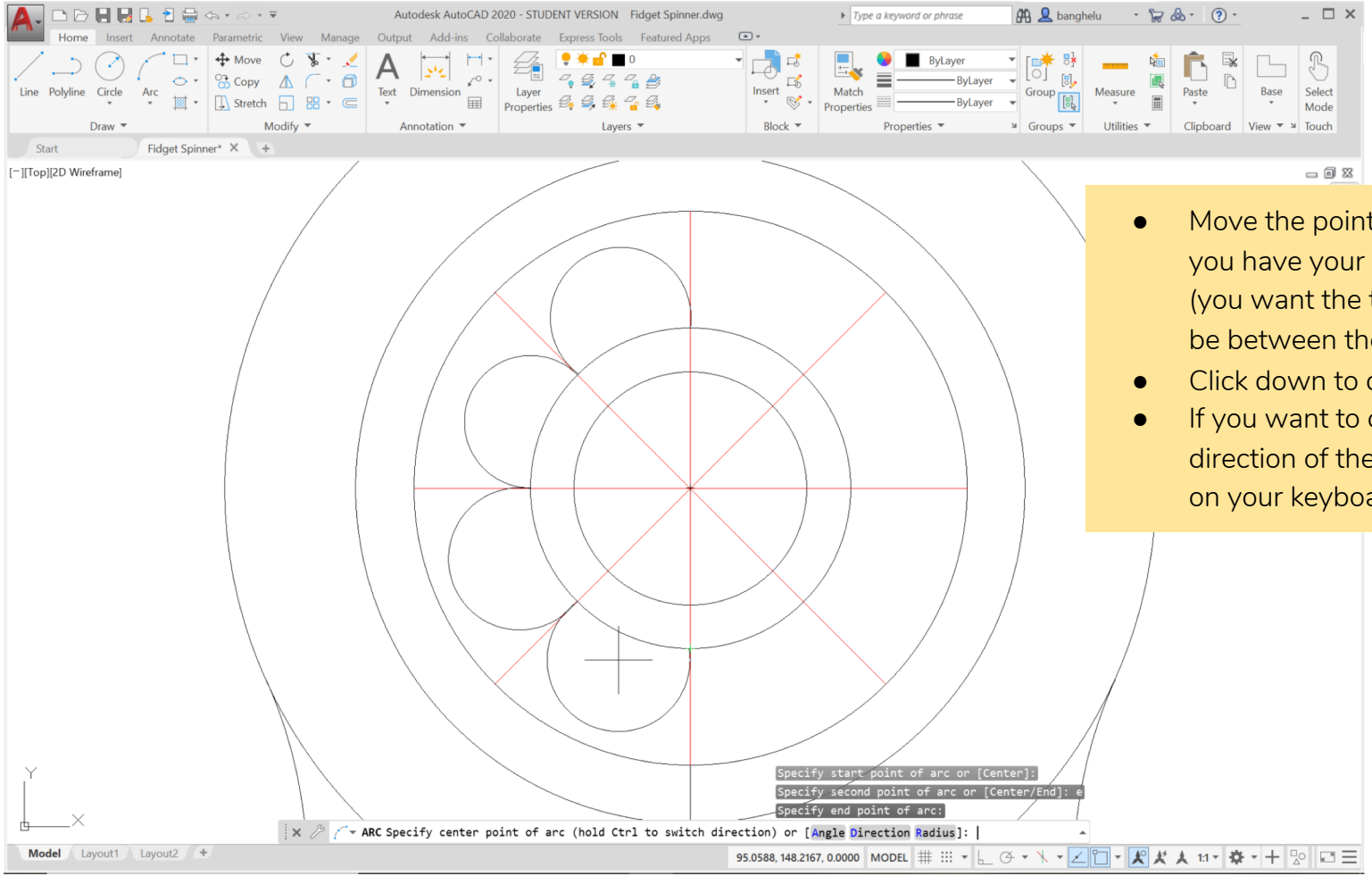
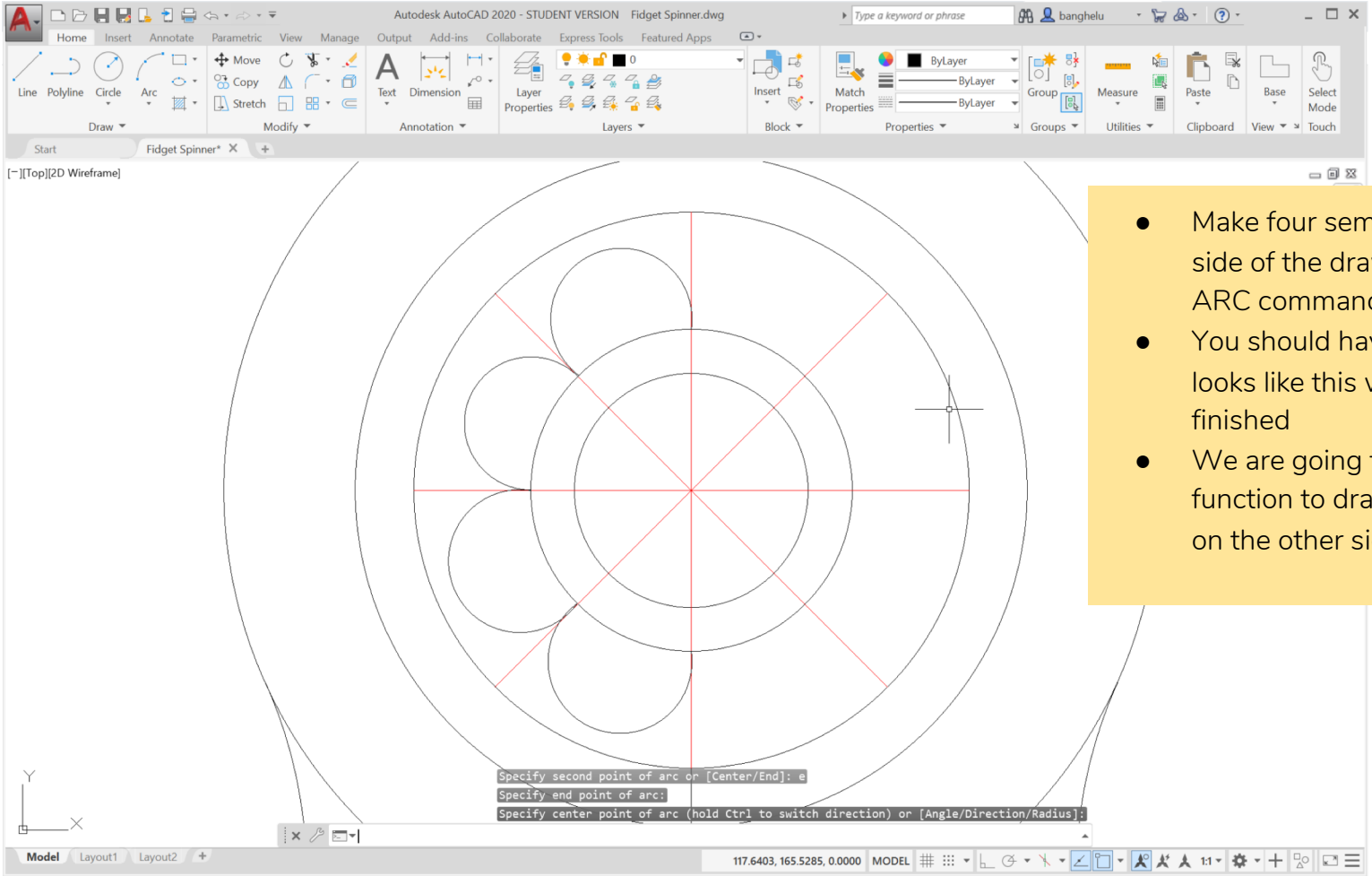
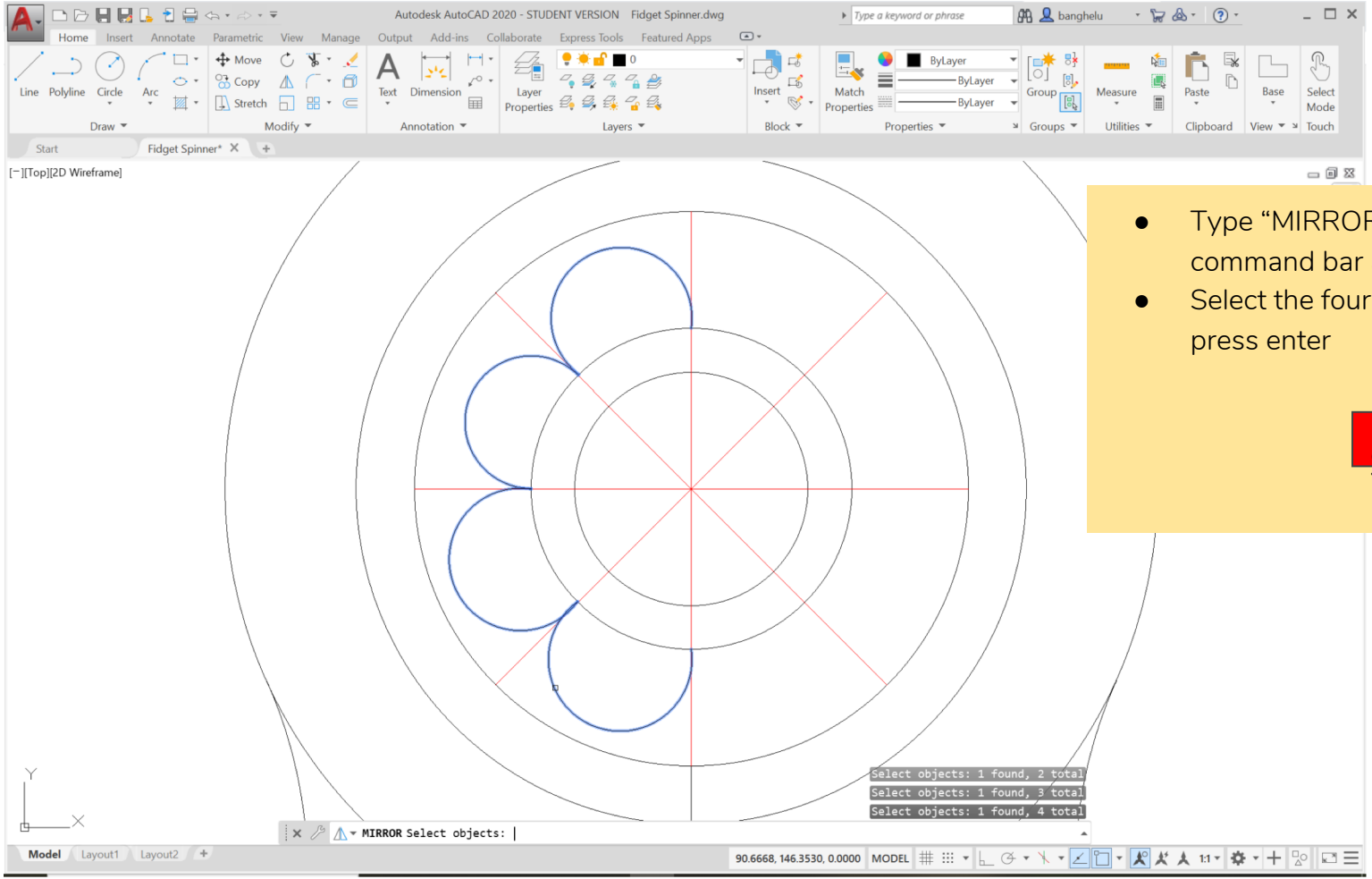


- Move the pointer around until you have your desired arc size (you want the two endpoints to be between the two red lines)
- Click down to draw the arc
- If you want to change the direction of the arc, press “Ctrl” on your keyboard



- Make four semi-circles on one side of the drawing using the ARC command
- You should have something that looks like this when you are finished
- We are going to use the mirror function to draw the semi-circles on the other side



- Type “MIRROR” into the command bar and press enter
- Select the four semi-circles and press enter

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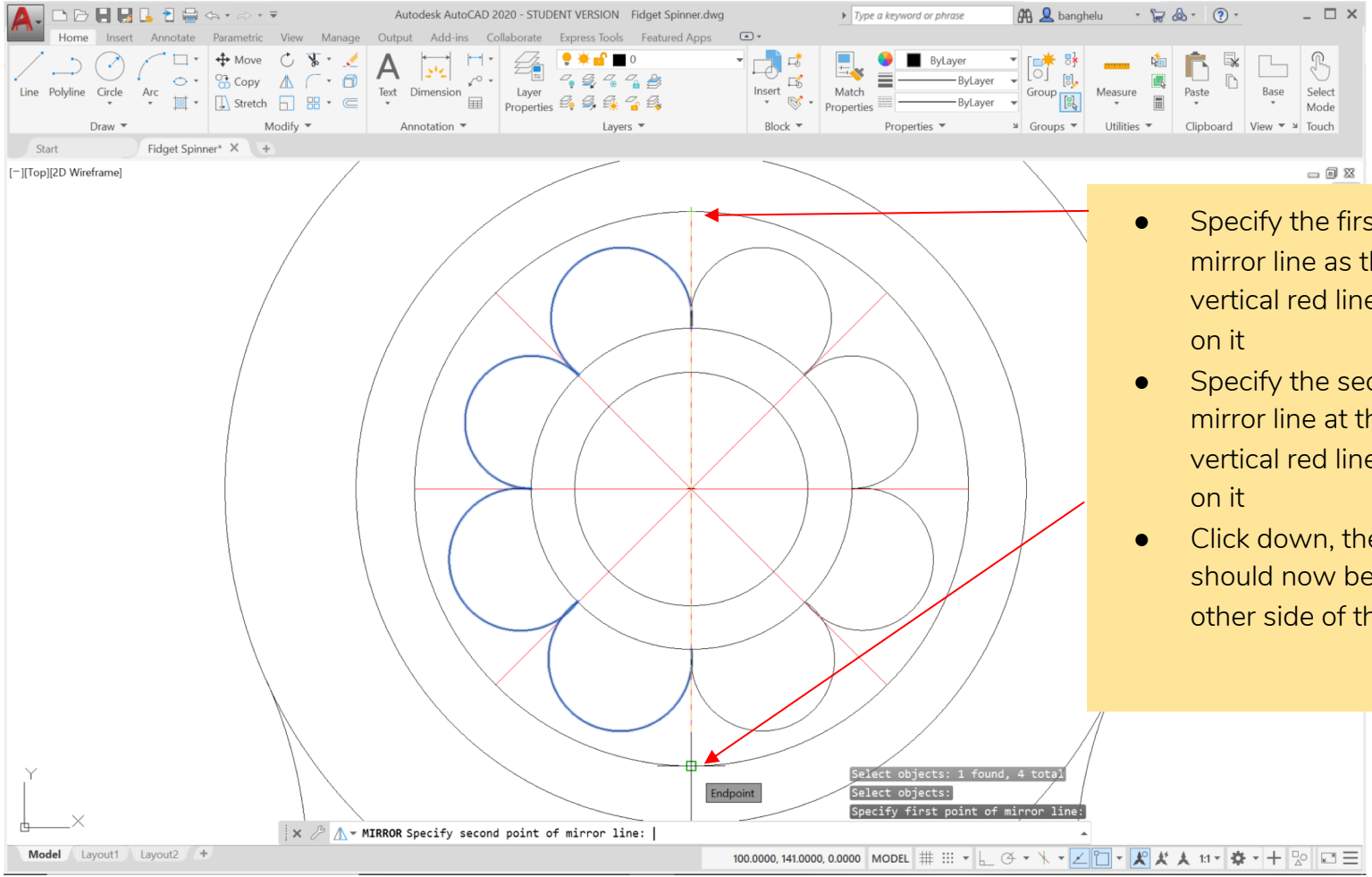
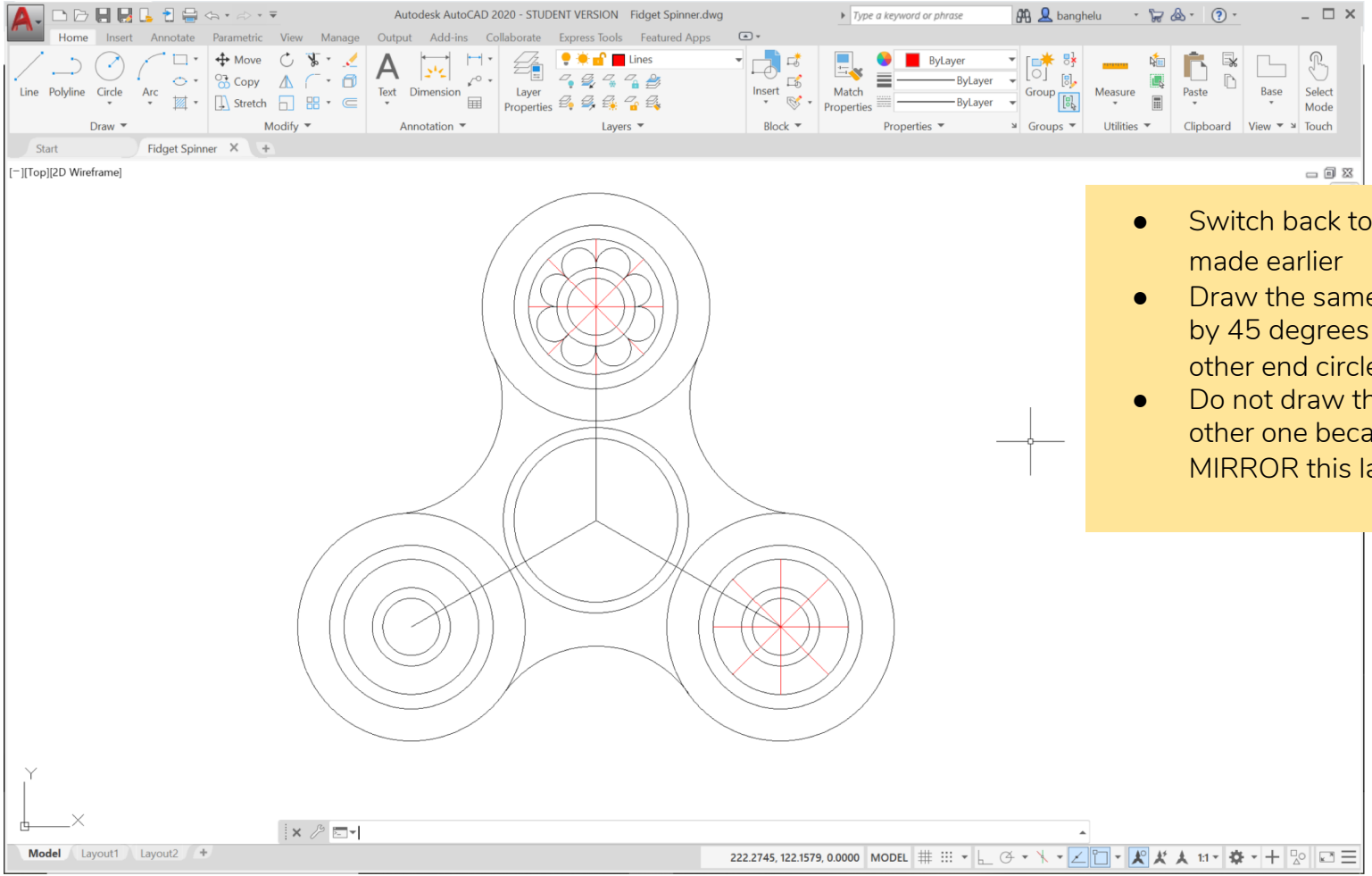
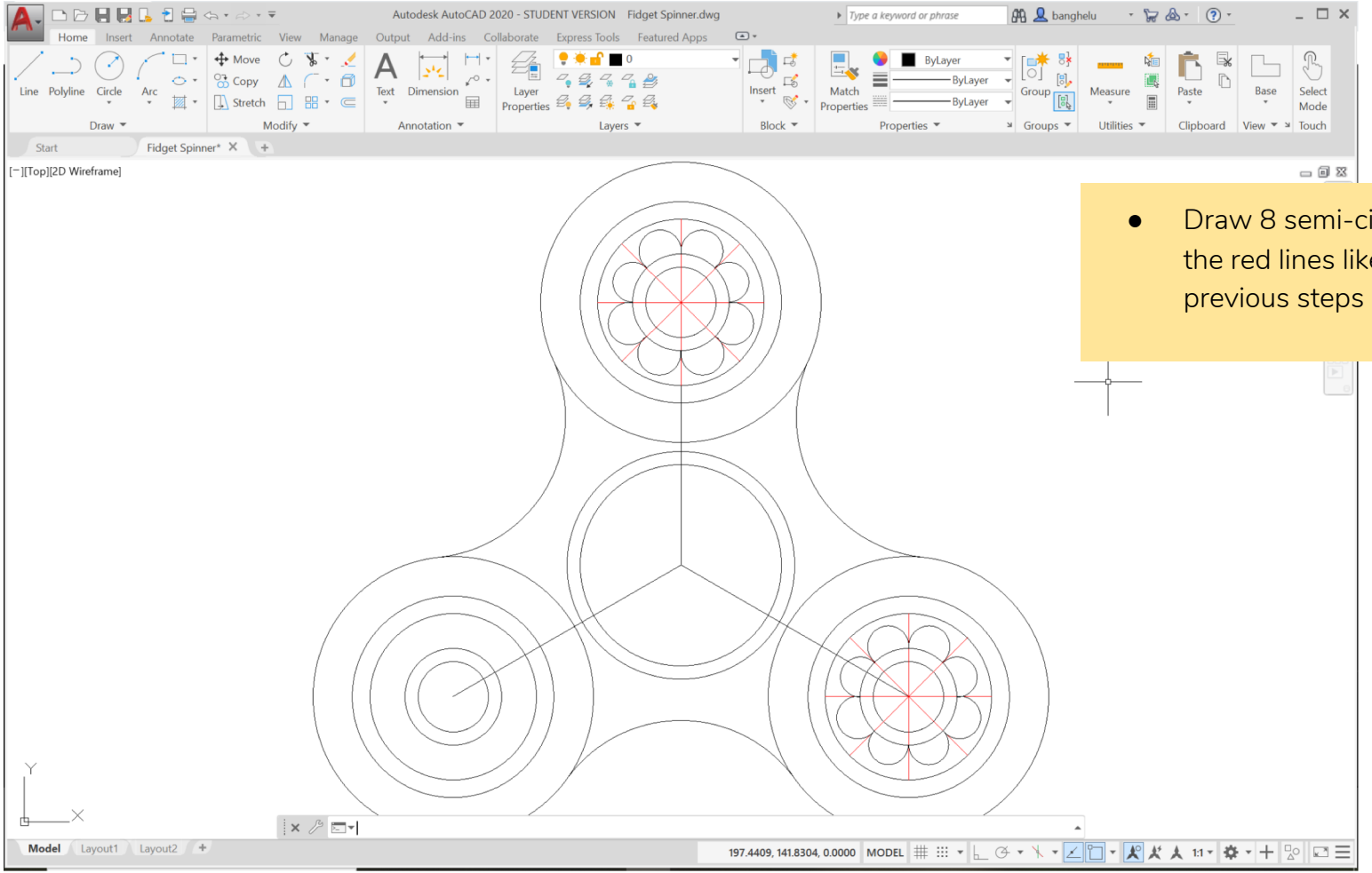


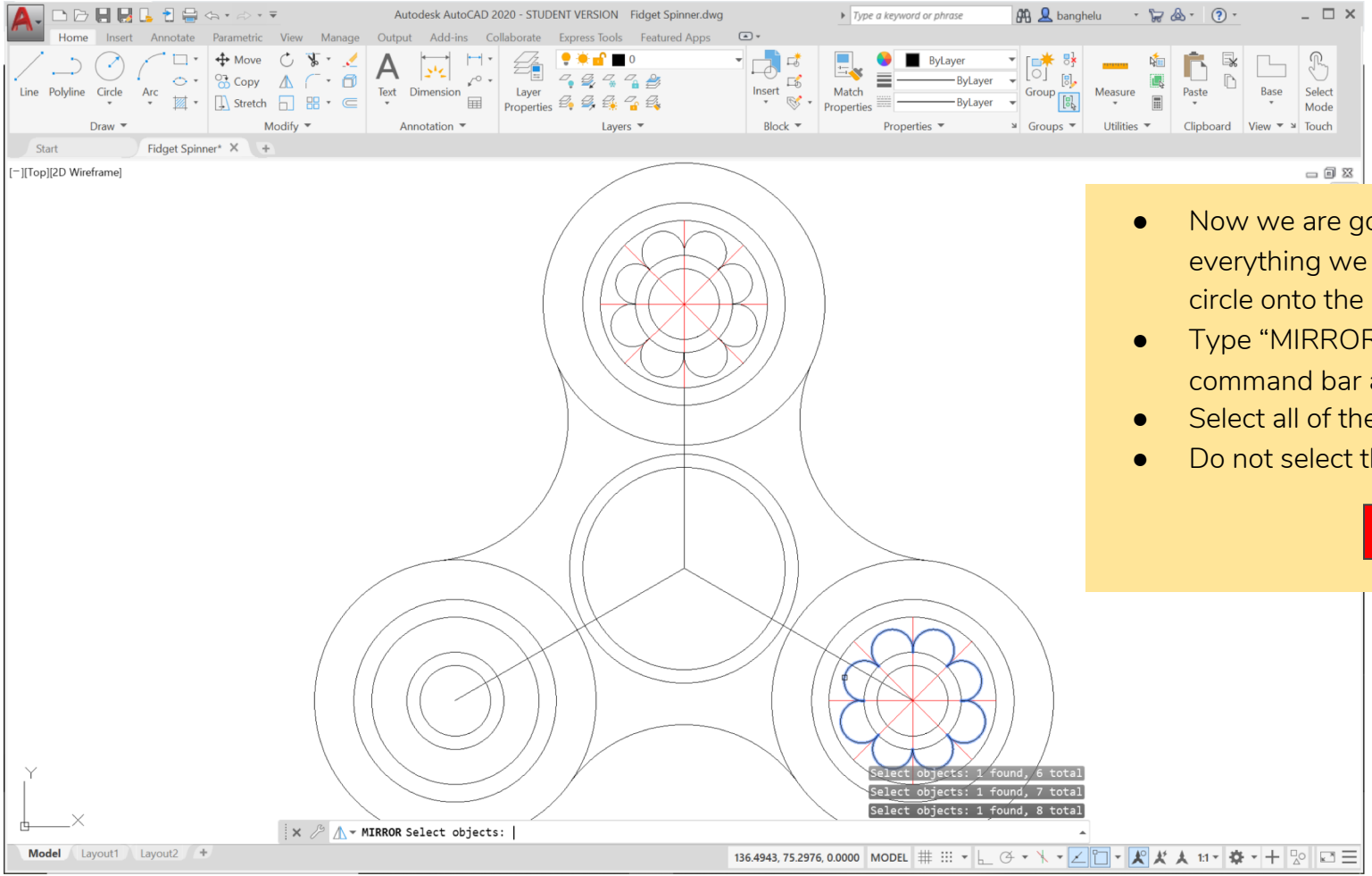
- Specify the first point of the mirror line as the top of the vertical red line by clicking down on it
- Specify the second point of the mirror line at the bottom of the vertical red line by clicking down on it
- Click down, the semi-circles should now be mirrored on the other side of the drawing



- Switch back to the red layer you made earlier
- Draw the same 8 lines separated by 45 degrees on one of the other end circles
- Do not draw the lines on the other one because we will MIRROR this later



- Draw 8 semi-circles in between the red lines like we did in the previous steps



- Now we are going to mirror everything we did on the right circle onto the left circle
- Type “MIRROR” into the command bar and press enter
- Select all of the semi-circles
- Do not select the red lines

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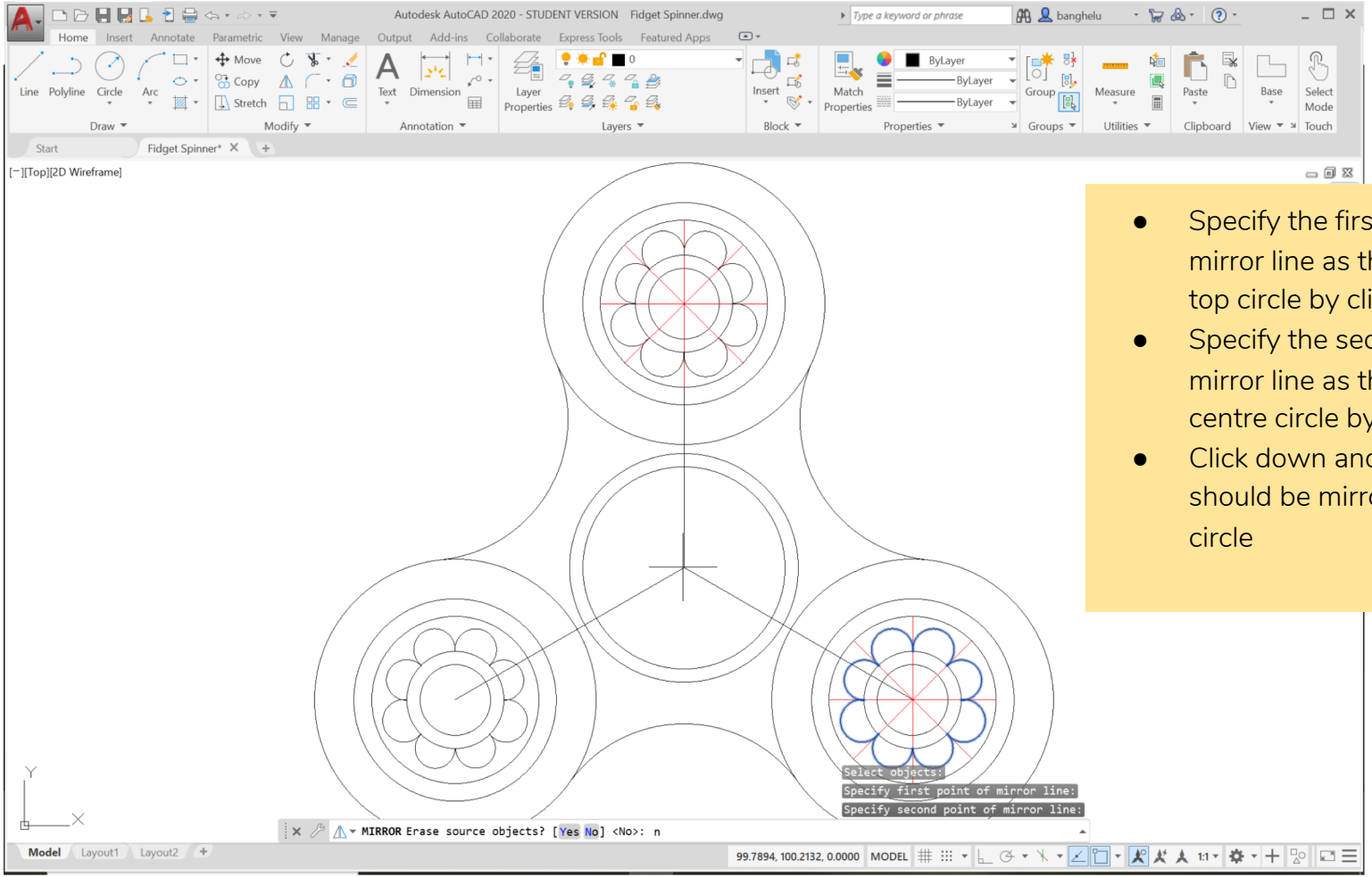
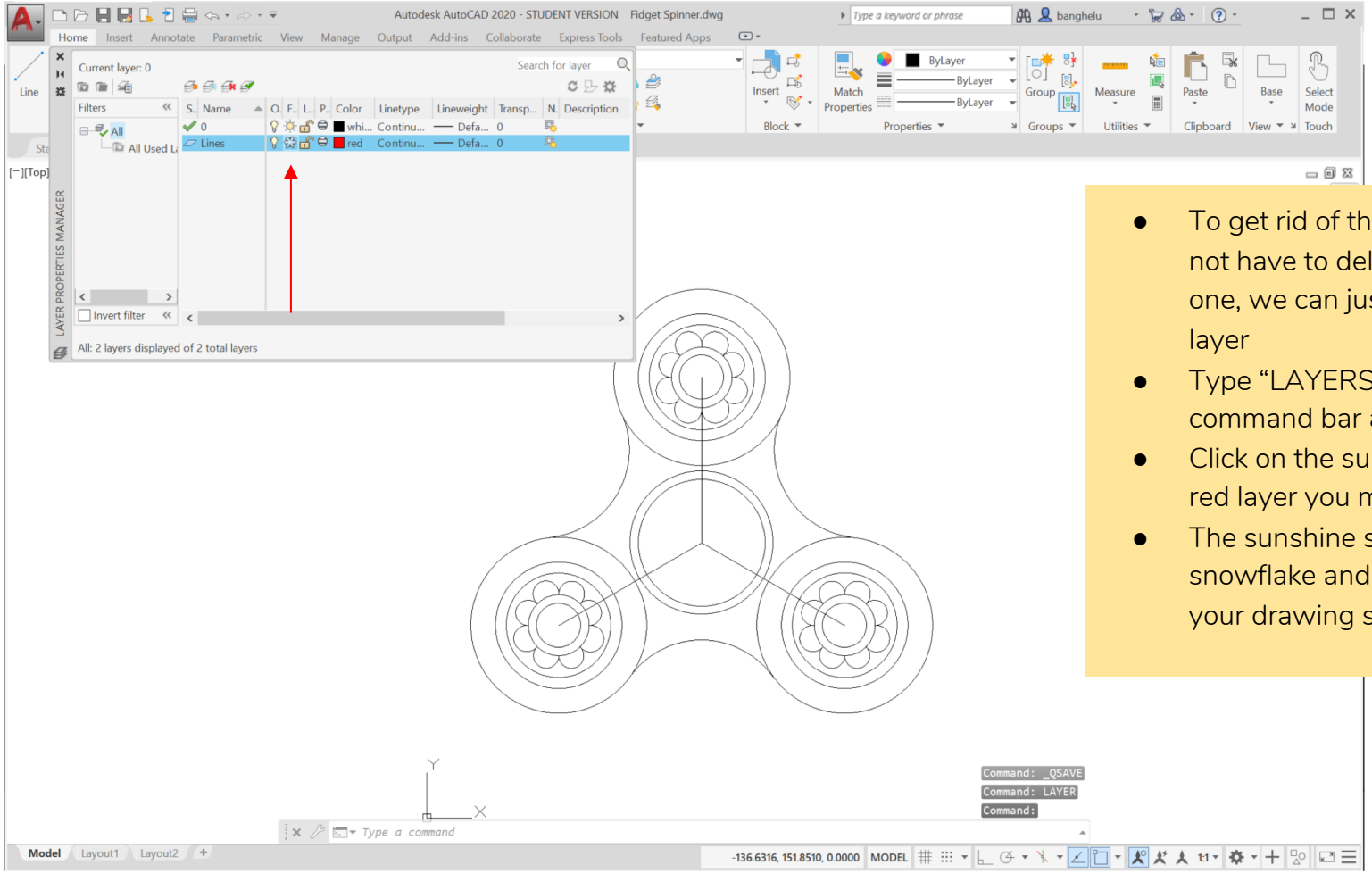
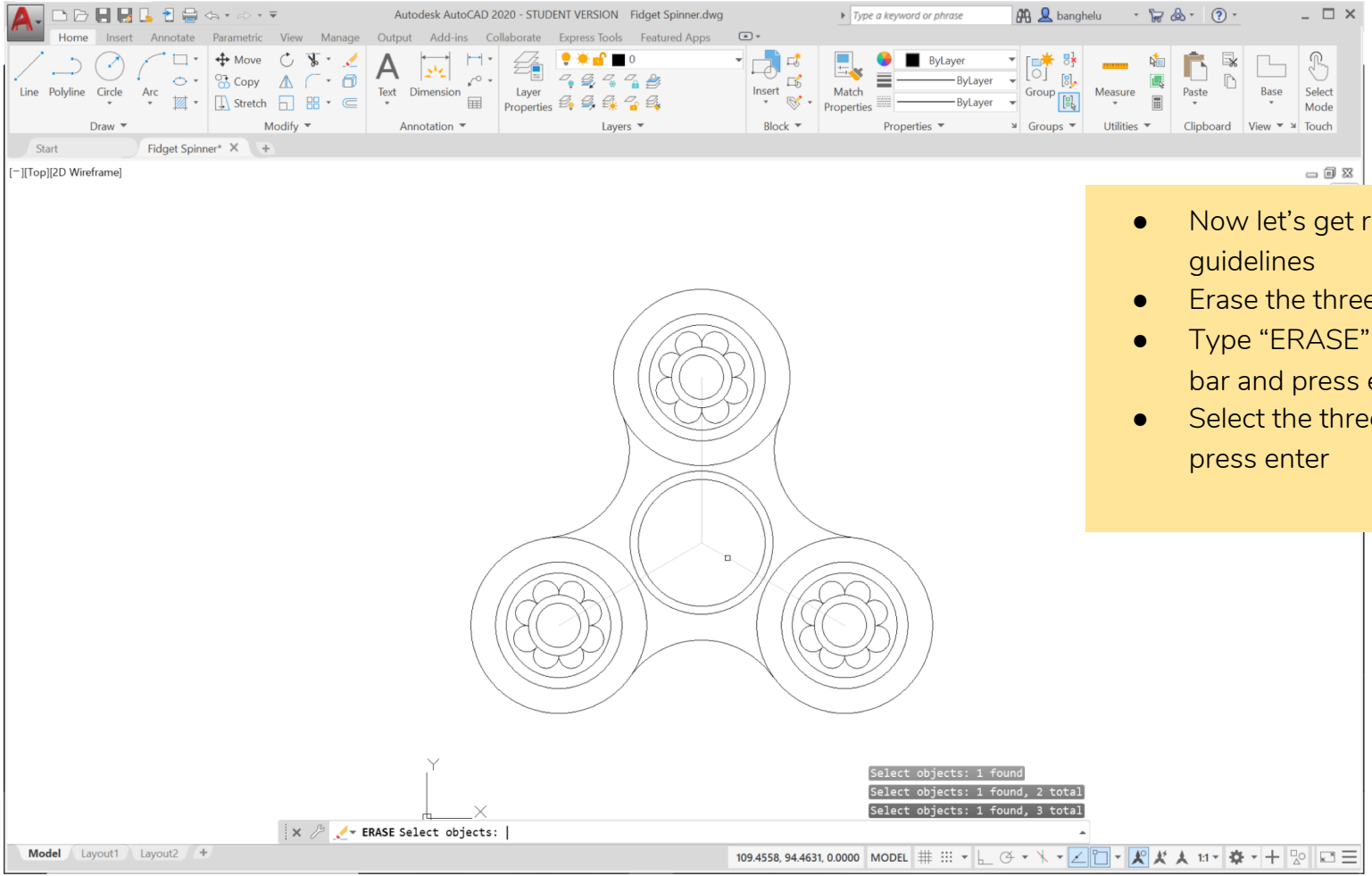


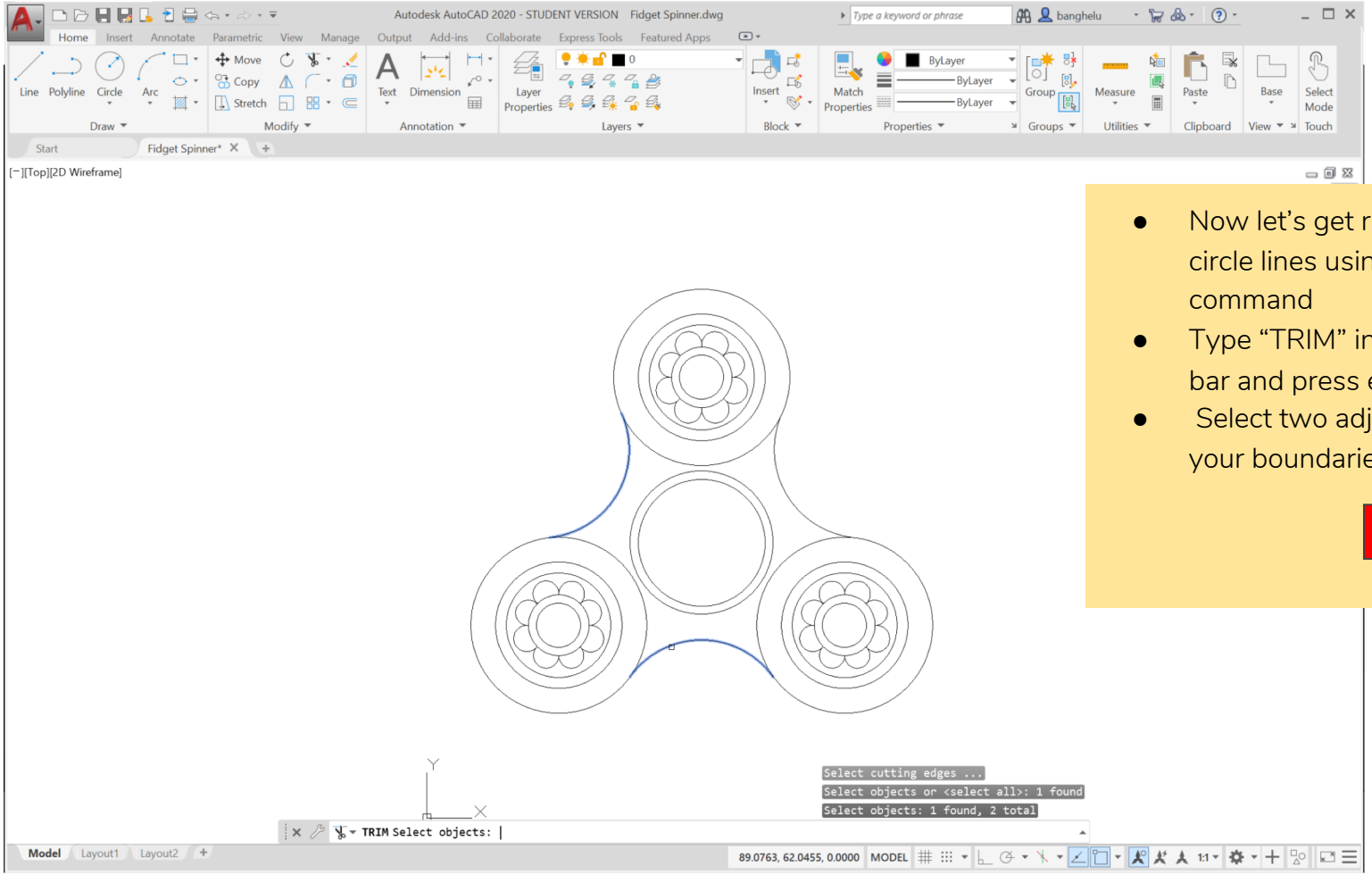
- Specify the first point of the mirror line as the centre of the top circle by clicking on it
- Specify the second point of the mirror line as the centre of the centre circle by clicking on it
- Click down and your semi-circles should be mirrored onto the left circle



- To get rid of the red lines, we do not have to delete them one-by-one, we can just freeze the red layer
- Type “LAYERS” into the command bar and press enter
- Click on the sunshine next to the red layer you made
- The sunshine should turn into a snowflake and the red lines on your drawing should disappear



- Now let's get rid of our other guidelines
- Erase the three centre lines
- Type "ERASE" into the command bar and press enter
- Select the three centre lines and press enter



- Now let's get rid of the inner circle lines using the TRIM command
- Type "TRIM" into the command bar and press enter
- Select two adjacent fillets as your boundaries and press enter

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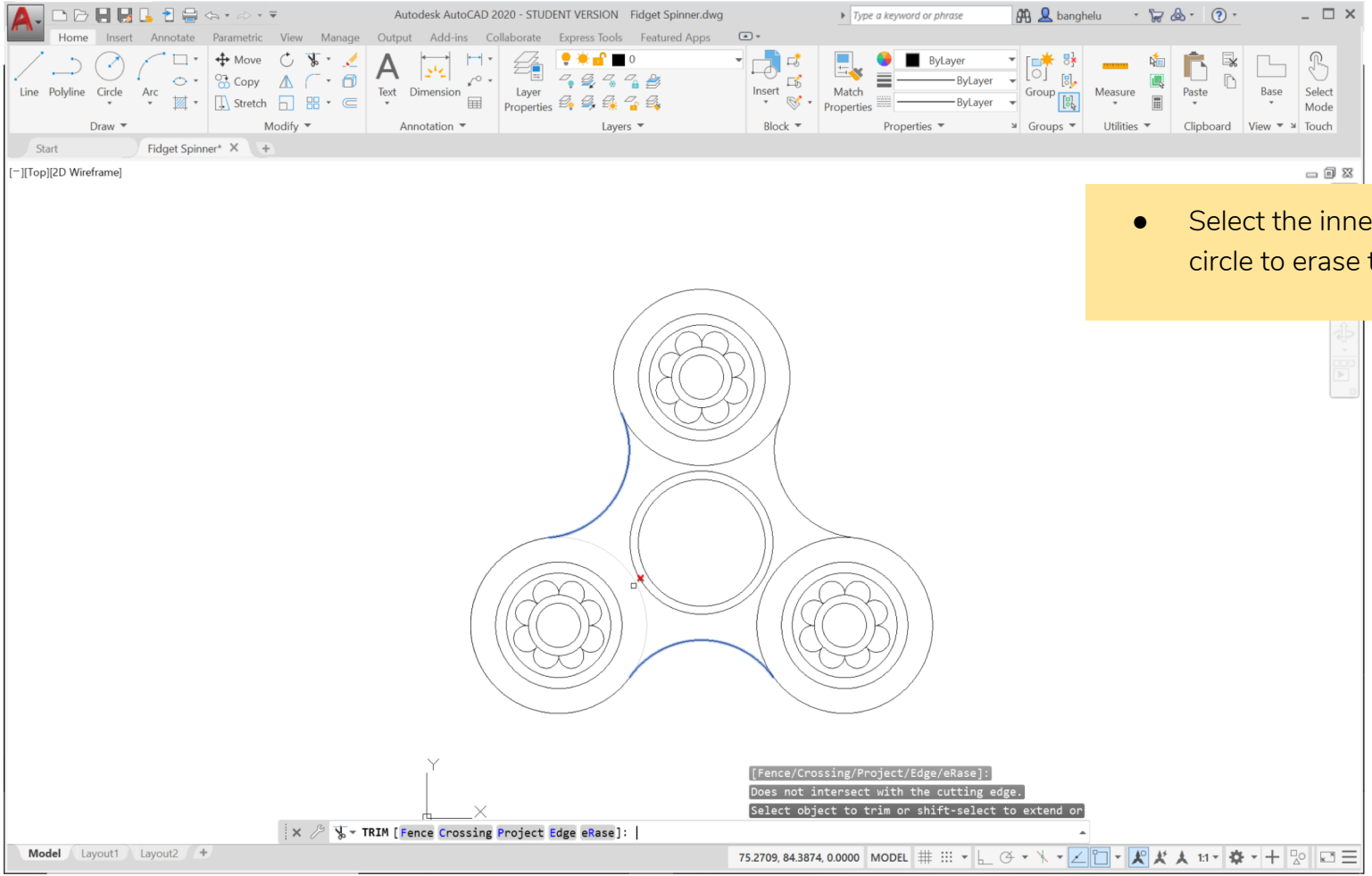
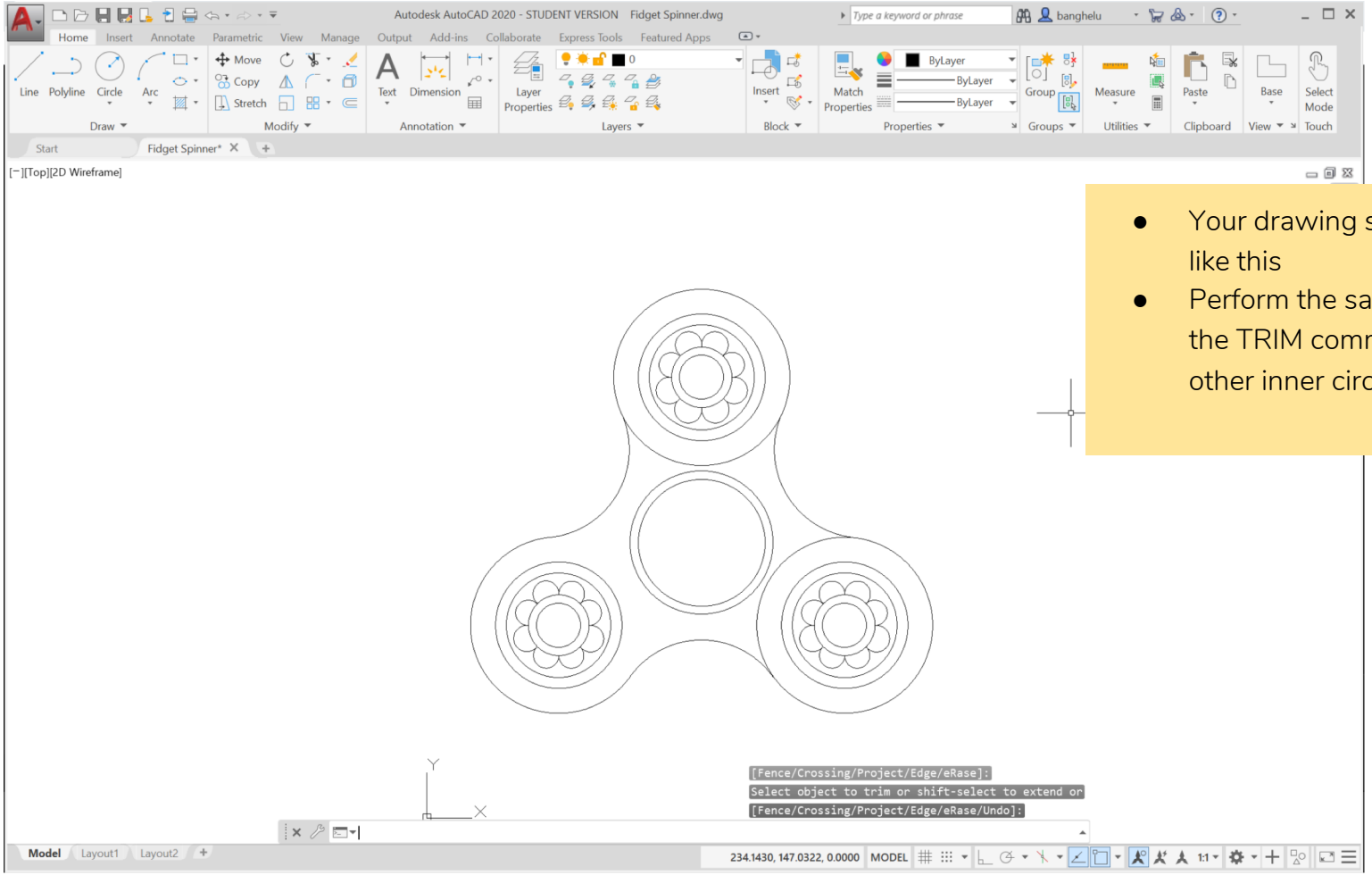
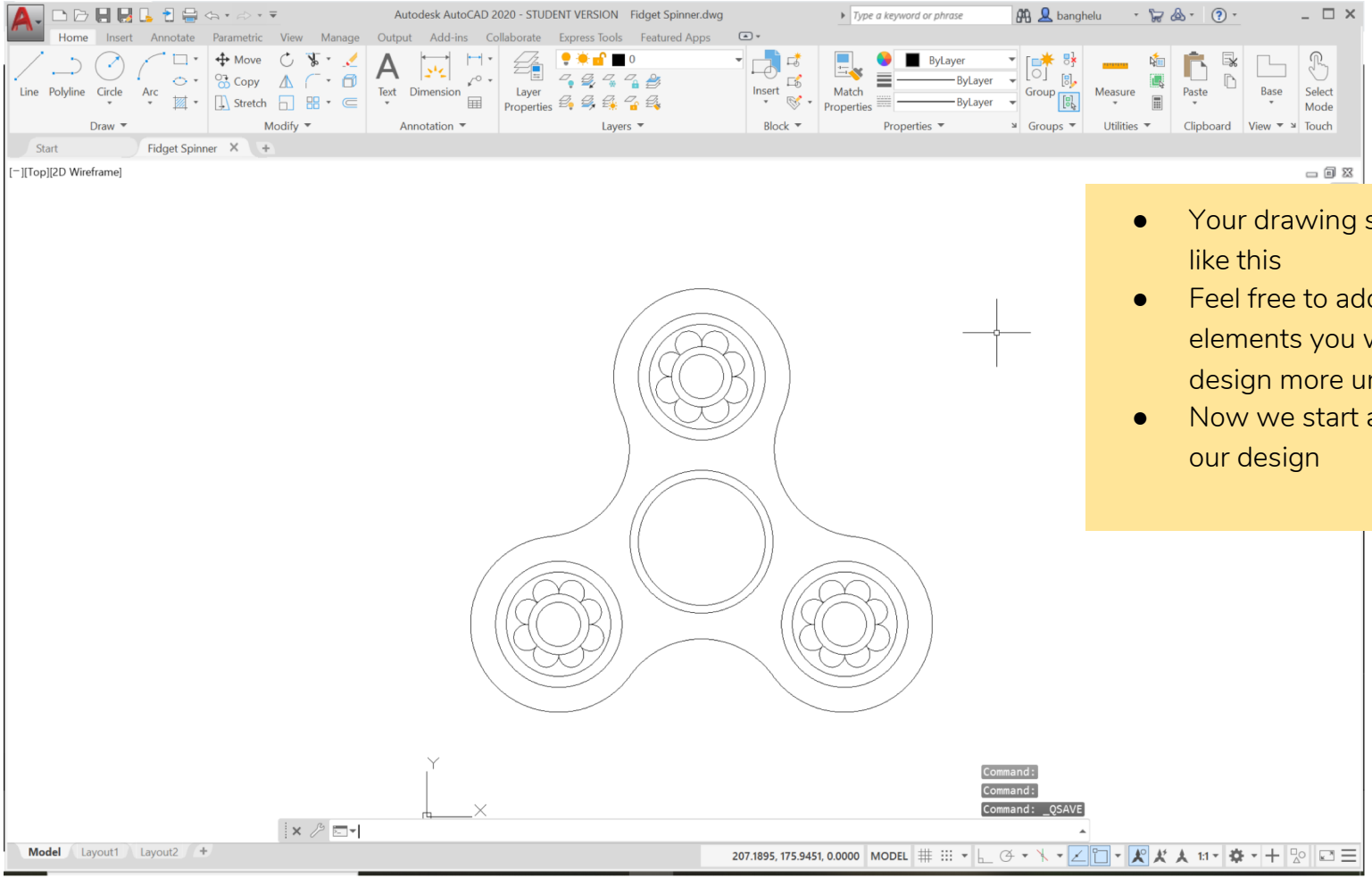


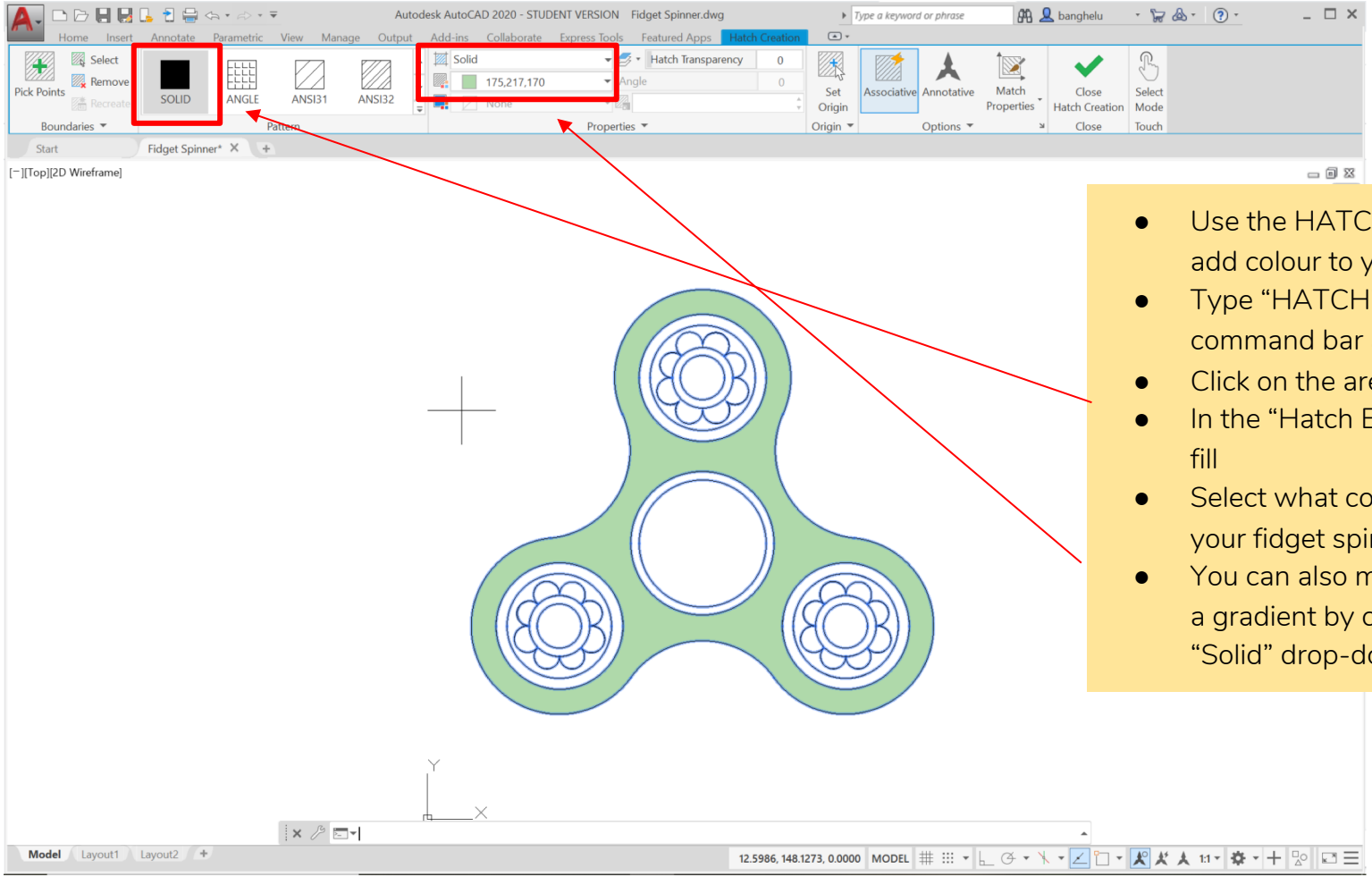
- Select the inner portion of the circle to erase to erase it



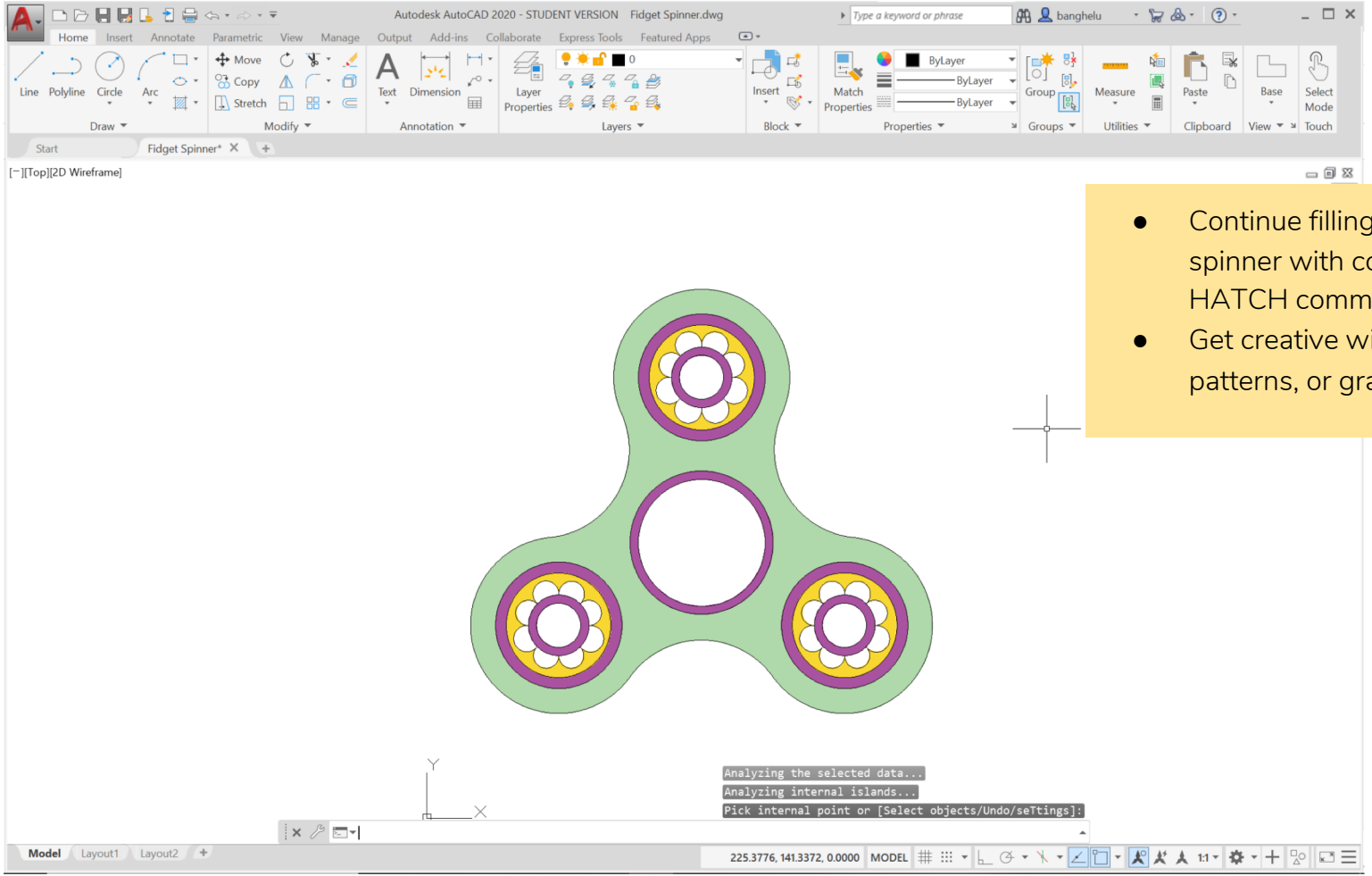
- Your drawing should now look like this
- Perform the same steps using the TRIM command to erase the other inner circle lines



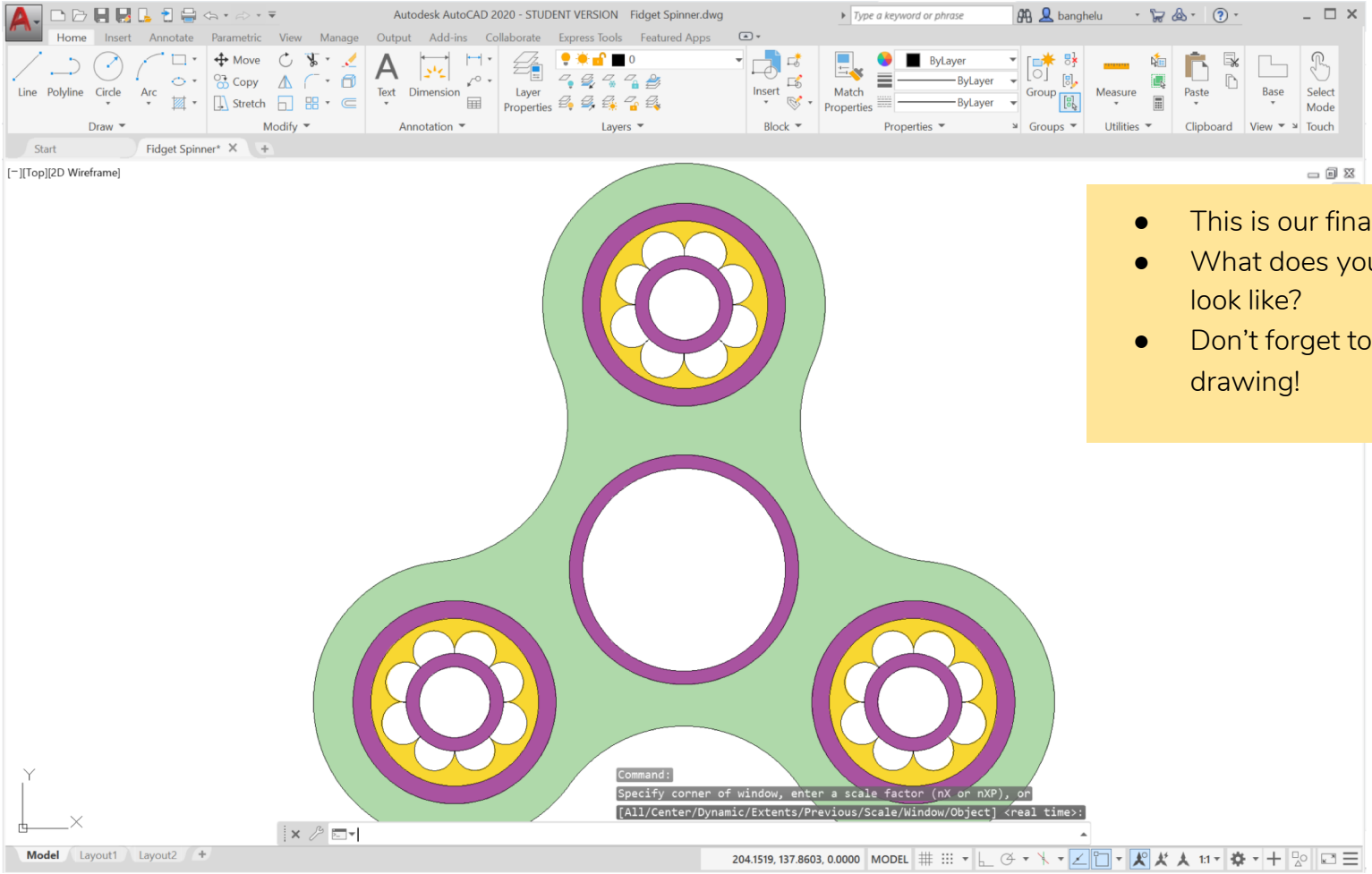
- Your drawing should now look like this
- Feel free to add any other design elements you want to make your design more unique
- Now we start adding colour to our design



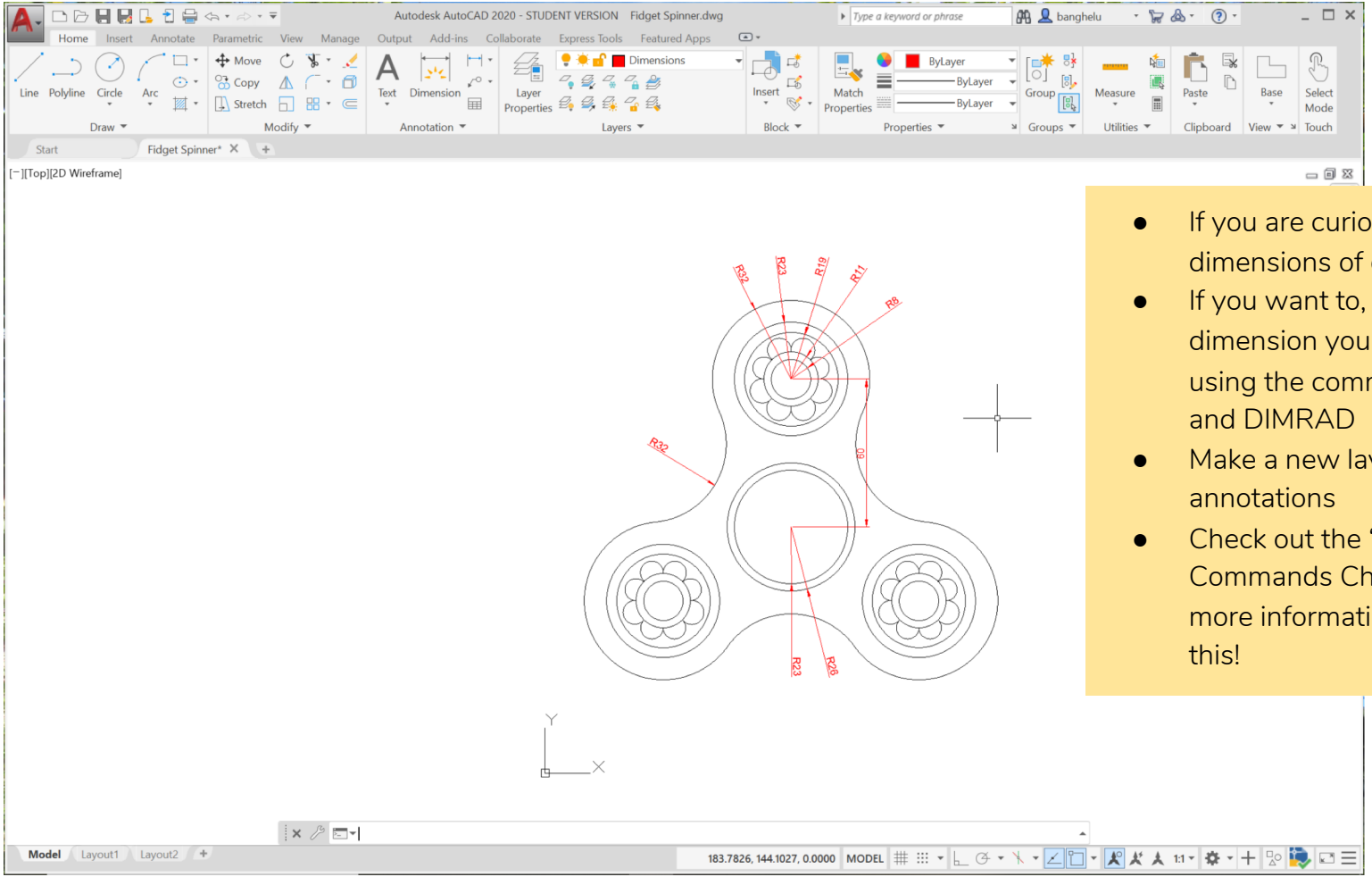
- Use the HATCH command to add colour to your drawing
- Type “HATCH” into the command bar and press enter
- Click on the area you want to fill
- In the “Hatch Editor” select solid fill
- Select what colour you want your fidget spinner to be
- You can also make your solid fill a gradient by clicking on the “Solid” drop-down menu



- Continue filling in your fidget spinner with colour using the HATCH command
- Get creative with the colours, patterns, or gradients you use!



- This is our final product!
- What does your fidget spinner look like?
- Don’t forget to save your drawing!



- If you are curious, these are the dimensions of our drawing
- If you want to, you can dimension your drawing by using the commands DIMLIN and DIMRAD
- Make a new layer for these annotations
- Check out the “AutoCAD Commands Cheat-Sheet” for more information on how to do this!

Tutorial Complete!

Great job, you just made a fidget spinner using AutoCAD!