Gear Generator

To discover the limits of the Number of teeth, Pitch diameter, Diametral pitch, and Pressure Angle I executed the following Test Cases.

Title	**Gear Generator Extreme Values Testing**
Summary	This set of test cases explores the effect of using extreme values in the gear specification fields.
Setup	Start by clearing all the existing gears and creating a connected set of at least four gears that have the following maximal parameters: Gear 0: 4 teeth, diametral pitch = 300 Gear 1: 400 teeth, diametral pitch = 300 Gear 2: 4 teeth, diametral pitch = 0.5 Gear 3: 400 teeth, diametral pitch = 0.5 These are chosen to create an extreme situation that may cause trouble for the app. If you want, you can add more gears. Choose one of the gears to select. Try different ones every time you run this procedure.
Notes	As you go through this procedure, don't just focus on the number fields. Look at the graphics to see that the gears look right and are animating properly.

SUMMARY	**TEST STEPS**	**ORACLE NOTES**
Test the minimum input for the "Number of teeth" (N) field	1. Enter a number larger than the minimum and less than the maximum into the N field. (Example: 7)	Check the number of teeth in the diagram matches your input.
	2. Click on the "-" button repeatedly until the number stops decrementing	VERIFY that the N = 4 Check the number of teeth in the diagram is 4.
	3. Enter a number larger than the minimum and less than the maximum into the N field. (Example: 7)	Check the number of teeth in the diagram matches your input. VERIFY that the N = 4 Check the number of teeth in the diagram is 4.
	4. Enter a 0 or some other number less than 4 into the N field	

Test the maximum input for the "Number of teeth" (N) field	1. Enter a number larger than the minimum and less than the maximum into the N field. (Example: 395) 2. Click on the "-" button repeatedly until the number stops decrementing 3. Enter a number larger than the minimum and less than the maximum into the N field. (Example: 7) 4. Enter a 0 or some other number less than 4 into the N field	Check the number of teeth in the diagram matches your input. VERIFY that the N = 4 Check the number of teeth in the diagram is 4. Check the number of teeth in the diagram matches your input. VERIFY that the N = 4 Check the number of teeth in the diagram is 4.
Test the "Number of teeth" (N) with bad data	1. Enter a number with decimals into the N field. (Example: 4.2) 2. Click ENTER 3. Enter a number larger than the minimum and less than the maximum in the N field (Example: 40) 4. Enter alphabetical and special characters into the N field (Example: abcd$%(*&^!) 5. Click ENTER	Check the number of teeth in the diagram matches your input. VERIFY that N= 4.2 Check the number of teeth in the diagram matches your input. Check that alphabetical and special characters are displayed in the field. VERIFY that the value of N returns to 40.
Test the minimum input for the "Diametral pitch" (P) field	1. Enter a number less than the minimum into the P field (Example: 0.1) 2. Click ENTER	Check that the inserted number is displayed in the field VERIFY that the P=0.5
Test the maximum input for the "Diametral pitch" (P) field	1. Enter a number larger than the maximum into the P field (Example: 400) 2. Click ENTER	Check that the inserted number is displayed in the field VERIFY that the P=0.5

Test that the value of the Diametral pitch modifies when clicking on SHIFT+ENTER	1. Enter a number in the Number of teeth field and into Pitch diameter (N=350, D=400) 2. Click SHIFT+ENTER while the cursor is in the Pitch diameter field 3. Enter a number in the Number of teeth field and into Pitch diameter (N=300, D=800) 4. Click SHIFT+ENTER while the cursor is in the Number of teeth field	Check that the inserted values are displayed in the fields VERIFY that the P=0.875 Check that the inserted values are displayed in the fields VERIFY that the P=0.375
Test that the value of the Diametral pitch modifies when clicking on SHIFT+ENTER	1. Enter the minimum Number of teeth and the maximum value of Diametral pitch (N=4, P=300) 2. Click ENTER 3. Enter the maximum Number of teeth and the maximum value of Diametral pitch (N=400, P=300) 4. Click ENTER 5. Enter the minimum Number of teeth and the minimum value of Diametral pitch (N=4, P=0.5) 6. Click ENTER 7. Enter the maximum Number of teeth and the minimum value of Diametral pitch (N=400, P=0.5) 8. Click ENTER	Check that the inserted values are displayed in the fields VERIFY that the D=0.013333333 Check that the inserted values are displayed in the fields VERIFY that the D=1.333333333 Check that the inserted values are displayed in the fields VERIFY that the D=8 Check that the inserted values are displayed in the fields VERIFY that the D=800