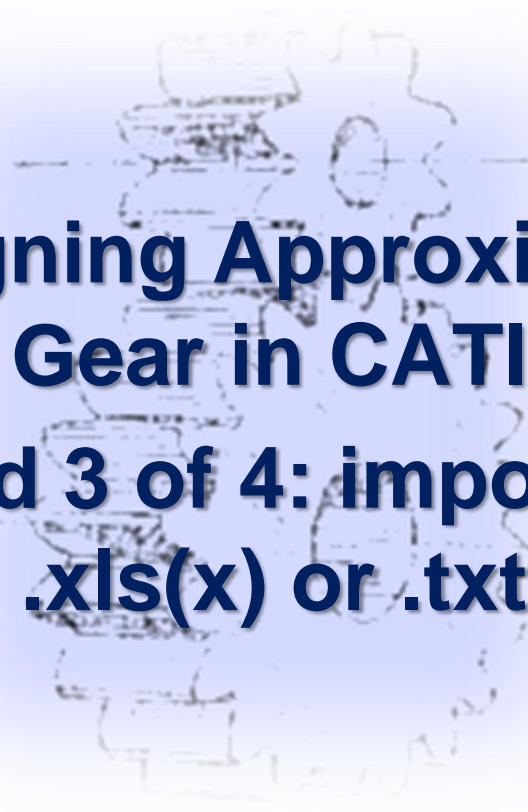
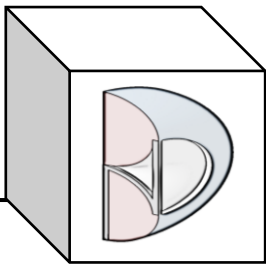


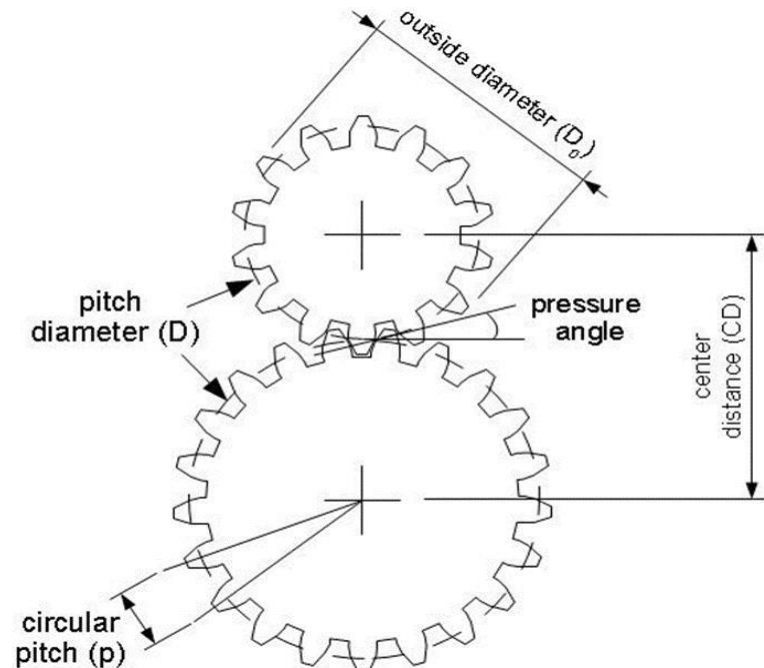
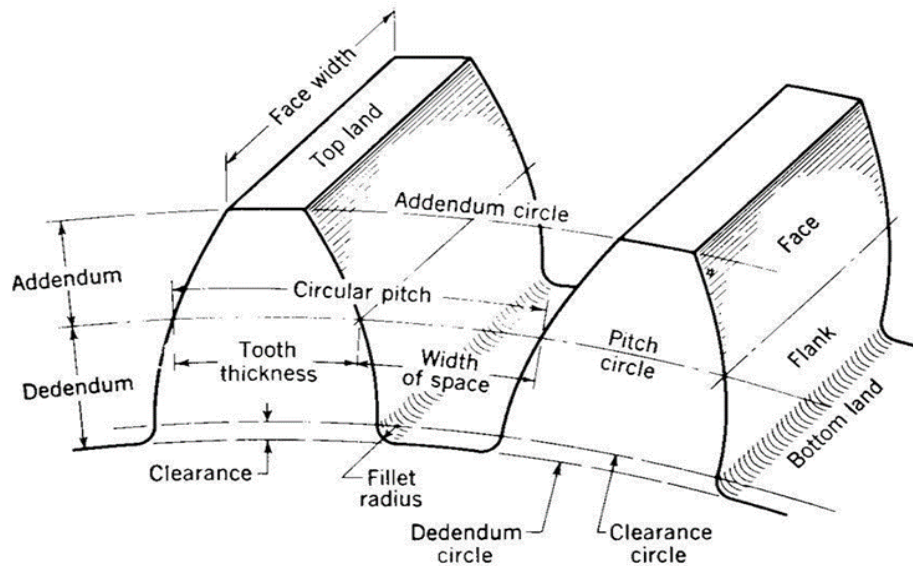
Designing Approximate Spur Gear in CATIA V5 (Method 3 of 4: import data from .xls(x) or .txt file)

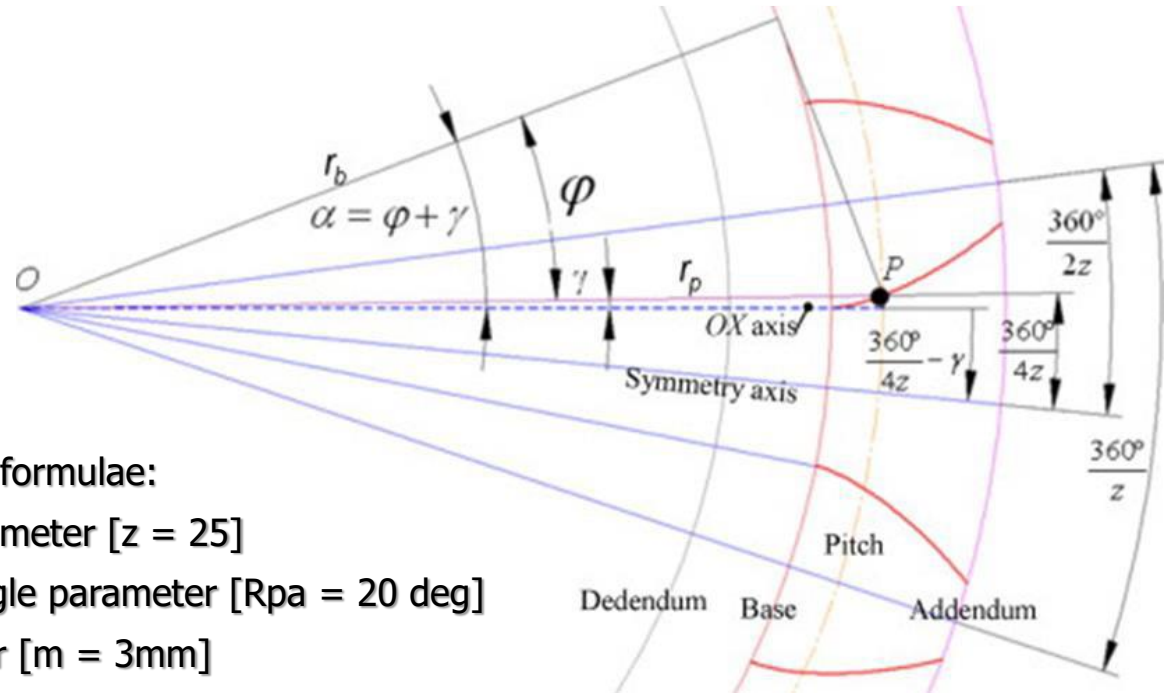




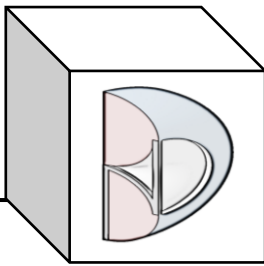
- This is step by step guide of how to create an *approximate* involute spur gear using CATIA V5.
- This document assumes that you know basic spur gear geometry.

GEAR NOMENCLATURE

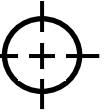




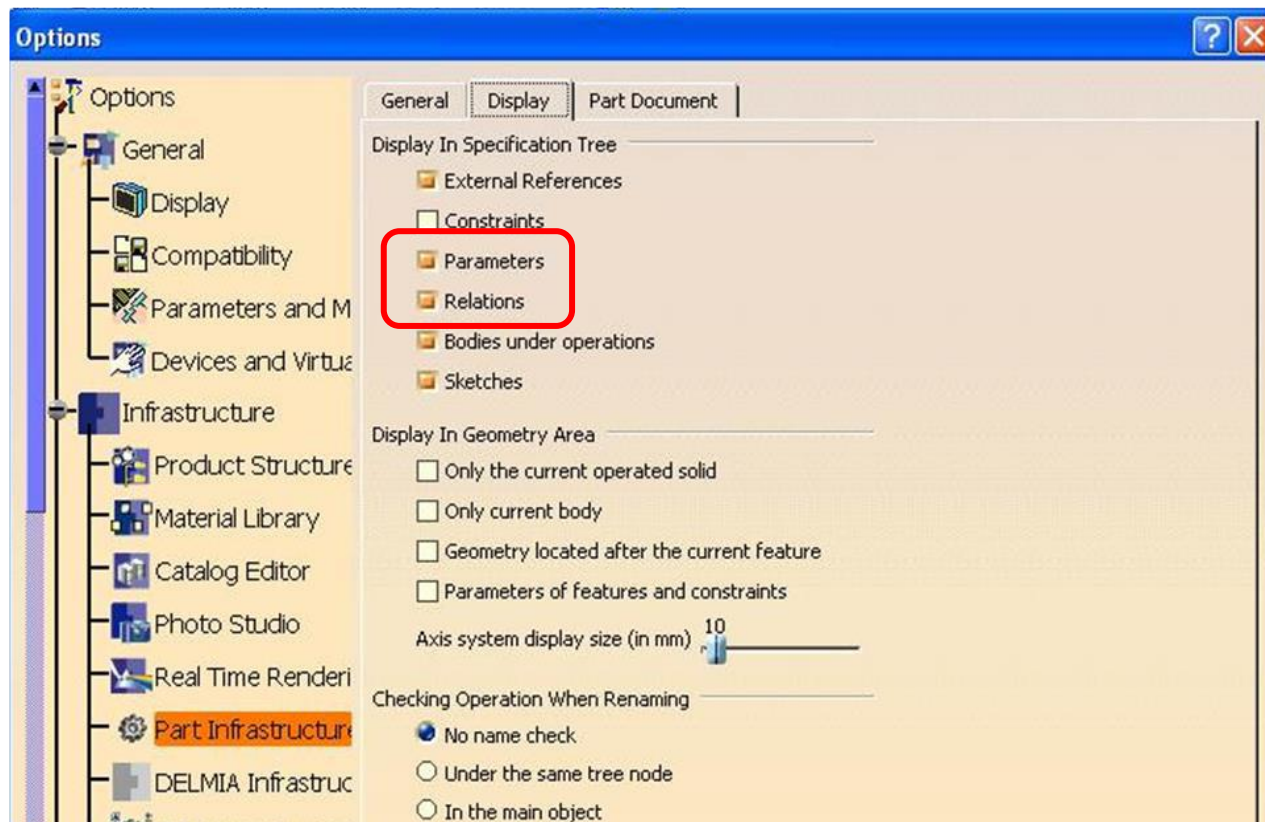
tr -tooth radius at dedendum circle // sketch constraint $[0.38 \cdot m]$

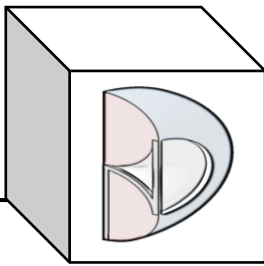


BND TechSource

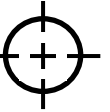


- When you start CATIA, go to TOOLS->OPTIONS->Infrastructure->
- Part Infrastructure and in Display select “Parameters” and “Relations”.

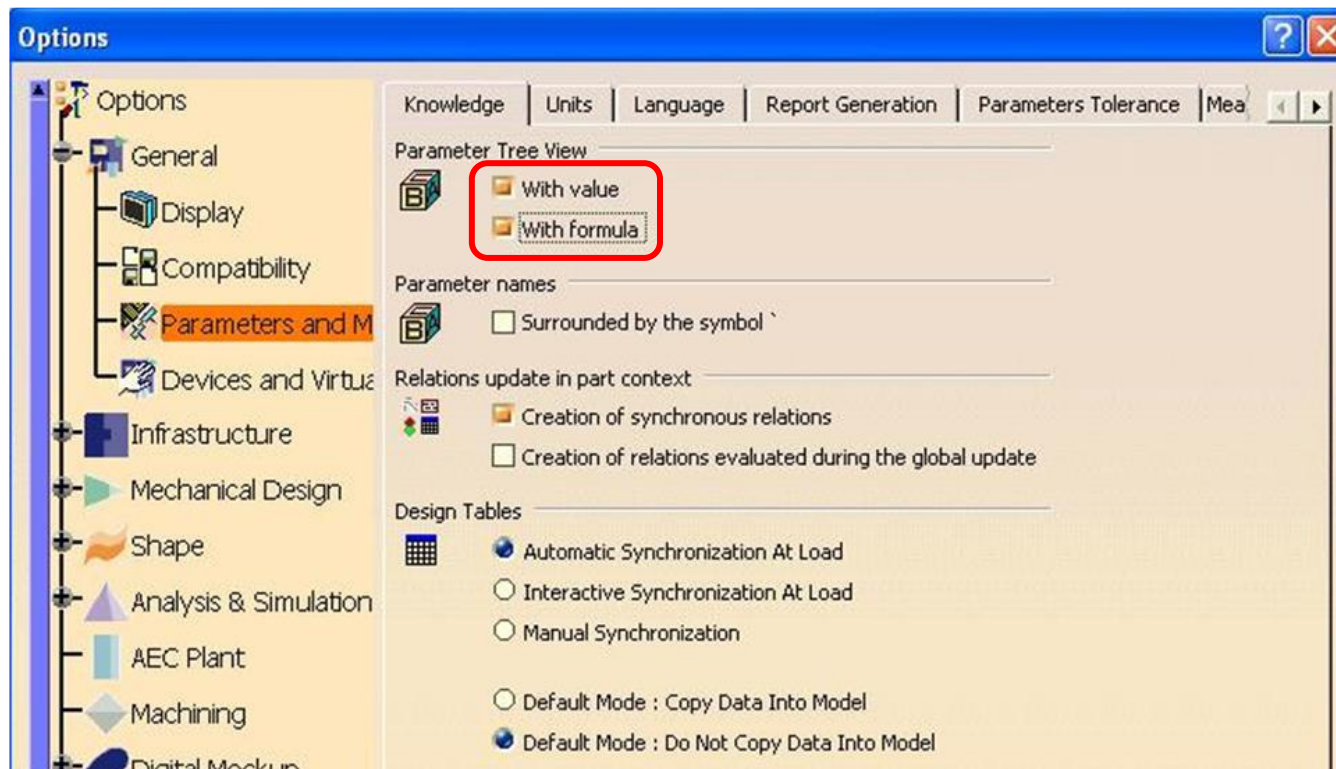


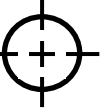
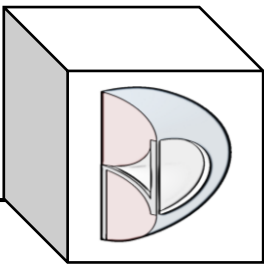


BND TechSource

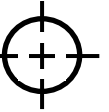


- Then in Options->General in Parameters and Measures select “With Value” and “With Formula” in Parameters Tree View.

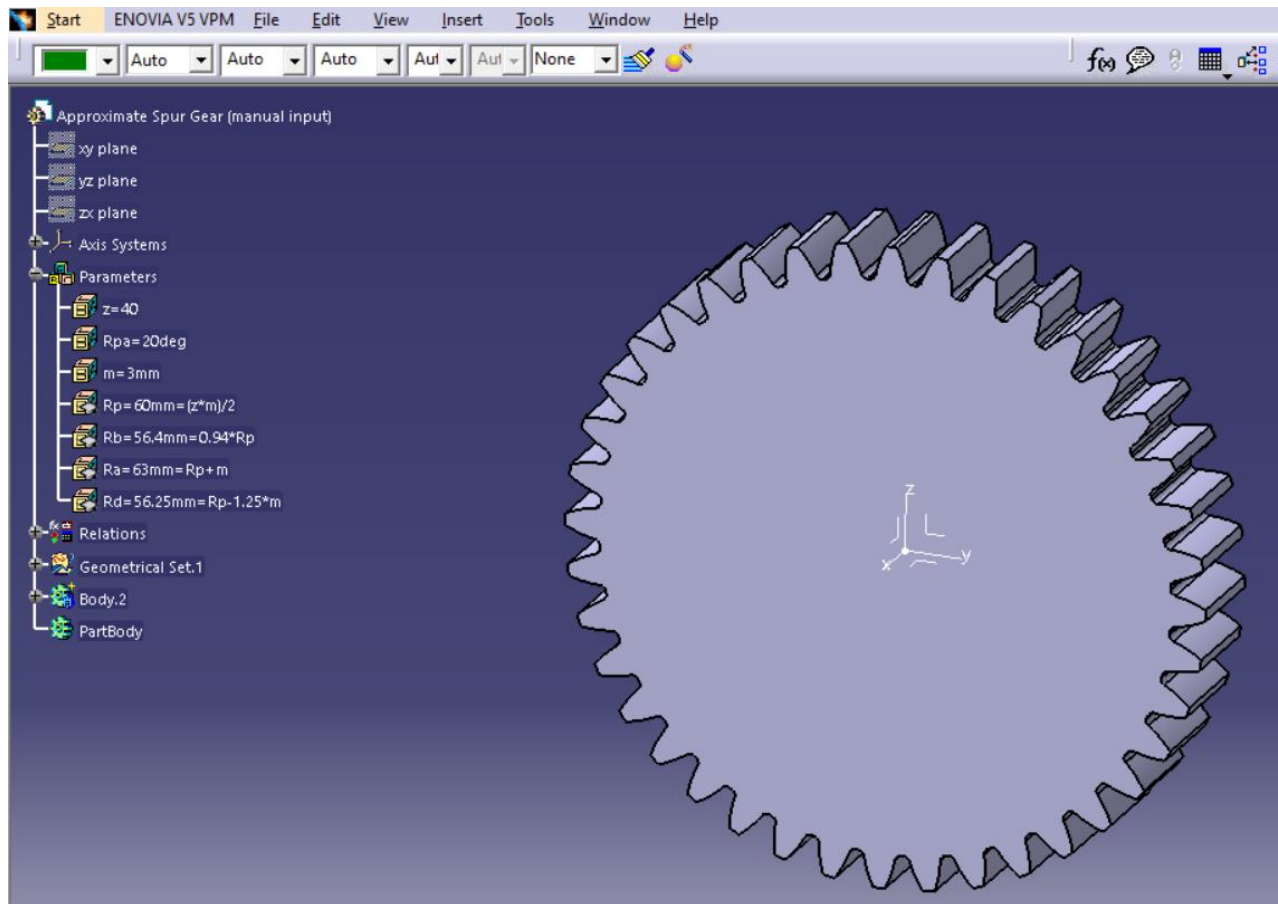


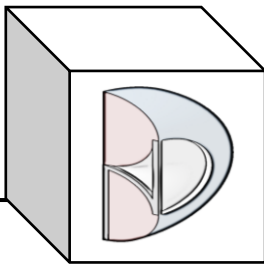


**Approach 1: Modify the
existing Spur Gear template
by importing data from
.xls(x) or .txt file**



- Open the existing Spur Gear template.





- Rename the Spur Gear template so as to not overwrite it.

The screenshot shows the ENOVIA V5 VPM software interface. The main window displays a 3D model of a spur gear. The left-hand tree view shows the part's structure, including planes, axis systems, parameters, and relations. A callout box labeled 'a) Right-click on "Properties"' points to the 'Approximate Spur Gear (manual input)' part in the tree. The 'Properties' dialog is open on the right, showing the 'Product' tab. A callout box labeled 'b) Rename the part' points to the 'Part Number' field, which contains 'Approximate Spur Gear (import data_01)'. At the bottom of the dialog, a callout box labeled 'c) Pick OK' points to the 'OK' button.

Start ENOVIA V5 VPM File Edit View Insert Tools Window Help

No Opa

Approximate Spur Gear (manual input)

xy plane
yz plane
zx plane
Axis Systems
Parameters
Number of teeth: z = 40
Ref Pressure Angle: Rpa = 20deg
Module: m = 3mm
Pitch circle radius: Rp = 60mm = (Number of teeth: z * Module: m) / 2
Base circle radius: Rb = 56.4mm = 0.94 * Pitch circle radius: Rp
Addendum circle radius: Ra = 63mm = Pitch circle radius: Rp + Module: m
Dedendum circle radius: Rd = 56.25mm = Pitch circle radius: Rp - 1.25 * Module: m
Relations
Geometrical Set.1
Body.2
PartBody

Properties

Current selection: Approximate Spur Gear (manual input)

Mechanical Mass Graphic Product Color Management

Product

Part Number Approximate Spur Gear (import data_01)
Revision
Definition
Nomenclature
Source Unknown
Description Approximate Spur Gear (import data_01)

Define other properties...

OK Apply Close

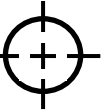
a) Right-click on "Properties"

b) Rename the part

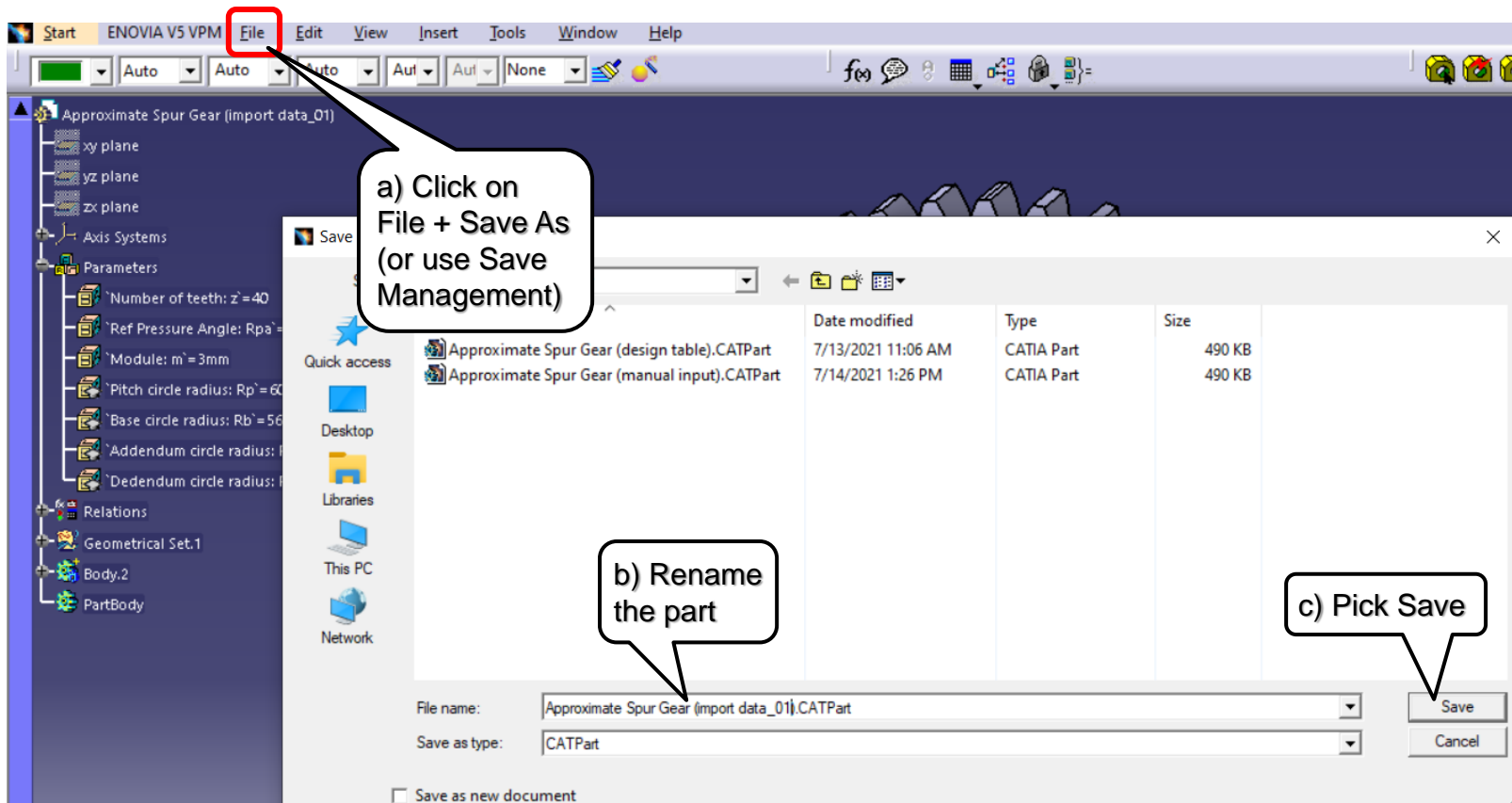
c) Pick OK

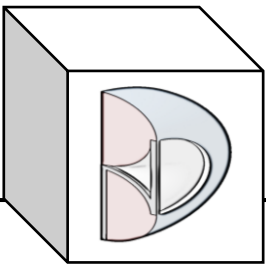


BND TechSource

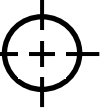


- Rename the Spur Gear template so as to not overwrite it.

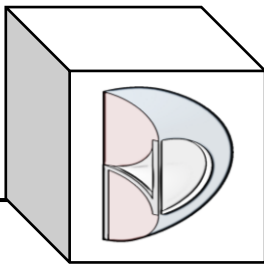




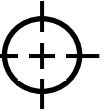
BND TechSource



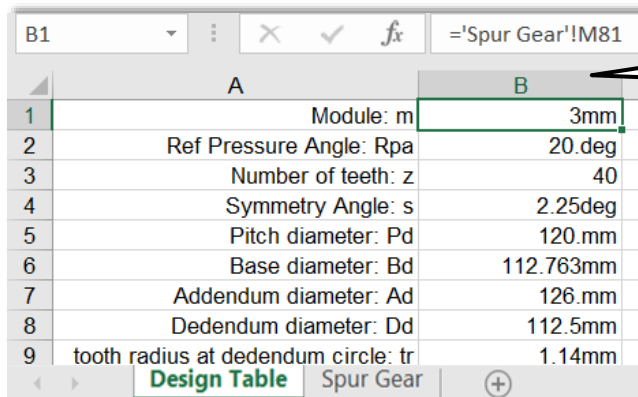
Understanding the .xls(x) and .txt files



BND TechSource



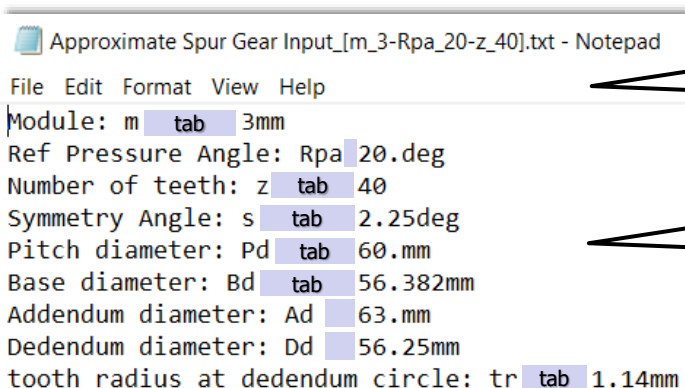
- Open the MS Excel Spur Gear spreadsheet to the Design Table worksheet.



	A	B
1	Module: m	3mm
2	Ref Pressure Angle: Rpa	20.deg
3	Number of teeth: z	40
4	Symmetry Angle: s	2.25deg
5	Pitch diameter: Pd	120.mm
6	Base diameter: Bd	112.763mm
7	Addendum diameter: Ad	126.mm
8	Dedendum diameter: Dd	112.5mm
9	tooth radius at dedendum circle: tr	1.14mm

This is the .xlsx file we will import.

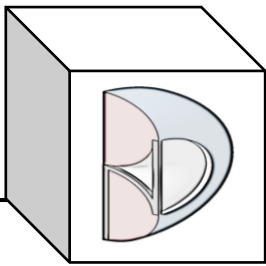
- Copy and paste this data into a .txt file (i.e. using Notepad).



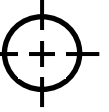
```
Approximate Spur Gear Input [m_3-Rpa_20-z_40].txt - Notepad
File Edit Format View Help
Module: m tab 3mm
Ref Pressure Angle: Rpa 20.deg
Number of teeth: z tab 40
Symmetry Angle: s tab 2.25deg
Pitch diameter: Pd tab 60.mm
Base diameter: Bd tab 56.382mm
Addendum diameter: Ad tab 63.mm
Dedendum diameter: Dd tab 56.25mm
tooth radius at dedendum circle: tr tab 1.14mm
```

This is the .txt file we will import.

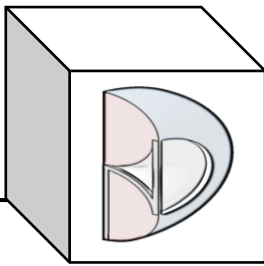
Notice there **must** be a tab between data.



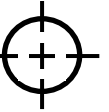
BND TechSource



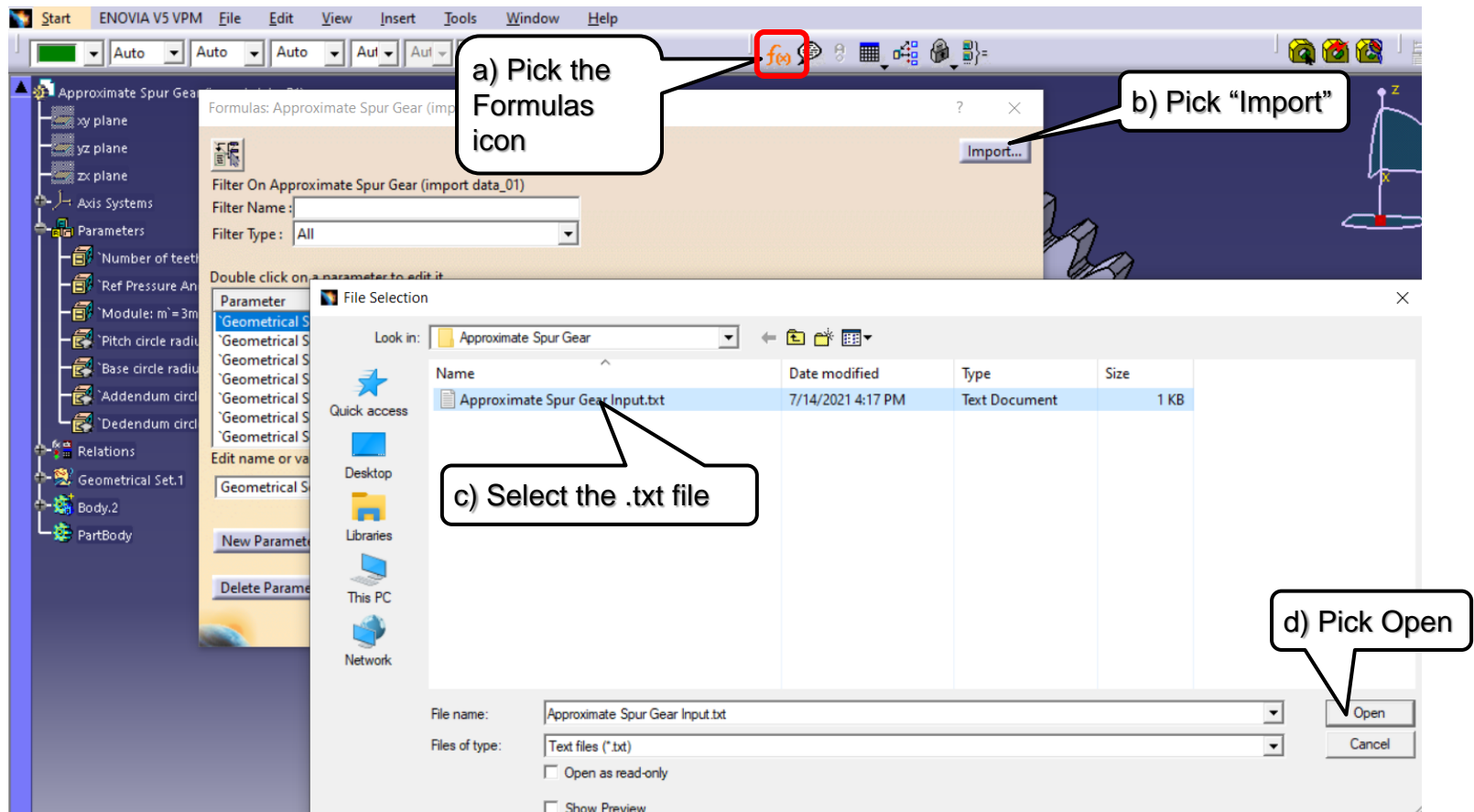
**Import the .xls(x) or .txt file
to the CATPart**

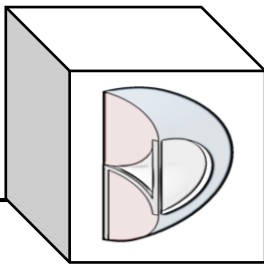


BND TechSource

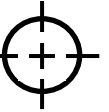


- Connect the .xls(x) or .txt file to the CATPart.





BND TechSource



- Connect the .xls(x) or .txt file to the CATPart.

Import Result

Created parameters

Name	Value	Formula	Comment
Symmetry Angle: s	2.25deg		
Pitch diameter: Pd	60mm		
Base diameter: Bd	56.382mm		
Addendum diameter: Ad	63mm		
Dedendum diameter: Dd	56.25mm		
tooth radius at dedendum circle: tr	1.14mm		

Already existing parameters

The parameter Length.6 was already existing. Its new value is going to be 3mm
The parameter Angle.1 was already existing. Its new value is going to be 20deg
The parameter Real.1 was already existing. Its new value is going to be 40

b) Notice these parameters now have values. So the old parameters will need to be replaced by these new ones.

a) Notice these parameters have been replaced because they had values assigned.

c) Pick OK

d) Pick OK

Import data_01

Parameter to edit it	Value	Formula	Active
Sketch.4\Activity	true		
Sketch.4\AbsoluteAxis\Activity	true		
Sketch.4\Radius.1\Radius	56.382mm	= 'Base Radius: Rb'	yes
Geometrical Set.1\Sketch.4\Radius.1\Activity	true		
Geometrical Set.1\Sketch.4\Radius.1\Mode	Constrained		
Geometrical Set.1\Sketch.4\Radius.2\Radius	60mm	= 'Pitch Radius: Rp'	yes
Geometrical Set.1\Sketch.4\Radius.2\Activity	true		

Edit name or value of the current parameter

Geometrical Set.1\Sketch.4\Activity true

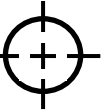
New Parameter of type Real With Single Value

Delete Parameter

Add Formula

Delete Formula

OK Apply Cancel



- Replace (and delete original) all the old parameters with the new ones.

The screenshot displays the ENOVIA V5 VPM software interface. The left sidebar shows a tree structure with the following items: Approximate Spur Gear (design table_01), xy plane, yz plane, zx plane, Axis Systems, Parameters, Relations, Geometrical Set.1, Body.3, and PartBody. The Parameters list includes: Number of teeth: z=40, Ref Pressure Angle: Rpa=20deg, Symmetry angle: s=2.25deg=90/Number of teeth: z, Module: m=3mm, Pitch diameter: Pd=120mm=Number of teeth: z*Module: m, Base diameter: Bd=112.763mm=cos(Ref Pressure Angle: Rpa)*Pitch diameter: Pd, Addendum diameter: Ad=126mm=Pitch diameter: Pd+(2*Module: m), Dedendum diameter: Dd=112.5mm=Pitch diameter: Pd-(2*Module: m), tooth radius at dedendum circle: tr=1.14, Symmetry Angle: s=2.25deg, Pitch diameter: Pd.1=60mm, Base diameter: Bd.1=56.382mm, Addendum diameter: Ad.1=63mm, Dedendum diameter: Dd.1=56.25mm, and tooth radius at dedendum circle: tr.1=1.14mm. The main workspace shows a 3D model of a gear. A 'Replace' dialog box is open in the bottom right corner, showing 'Approximate Spur G' being replaced with 'Approximate Spur Gear (design table_01)'. The dialog has a 'Replace' tab and a 'With' tab. The 'Delete replaced elements and exclusive parents' checkbox is checked. The 'OK' button is highlighted.

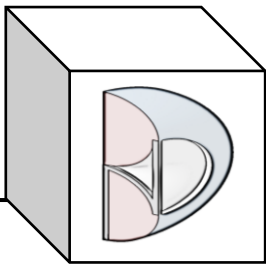
a) Right-click the old parameter; drop on Replace

b) Pick the new parameter

c) Pick "Delete replaced elements and exclusive parents"

d) Pick OK

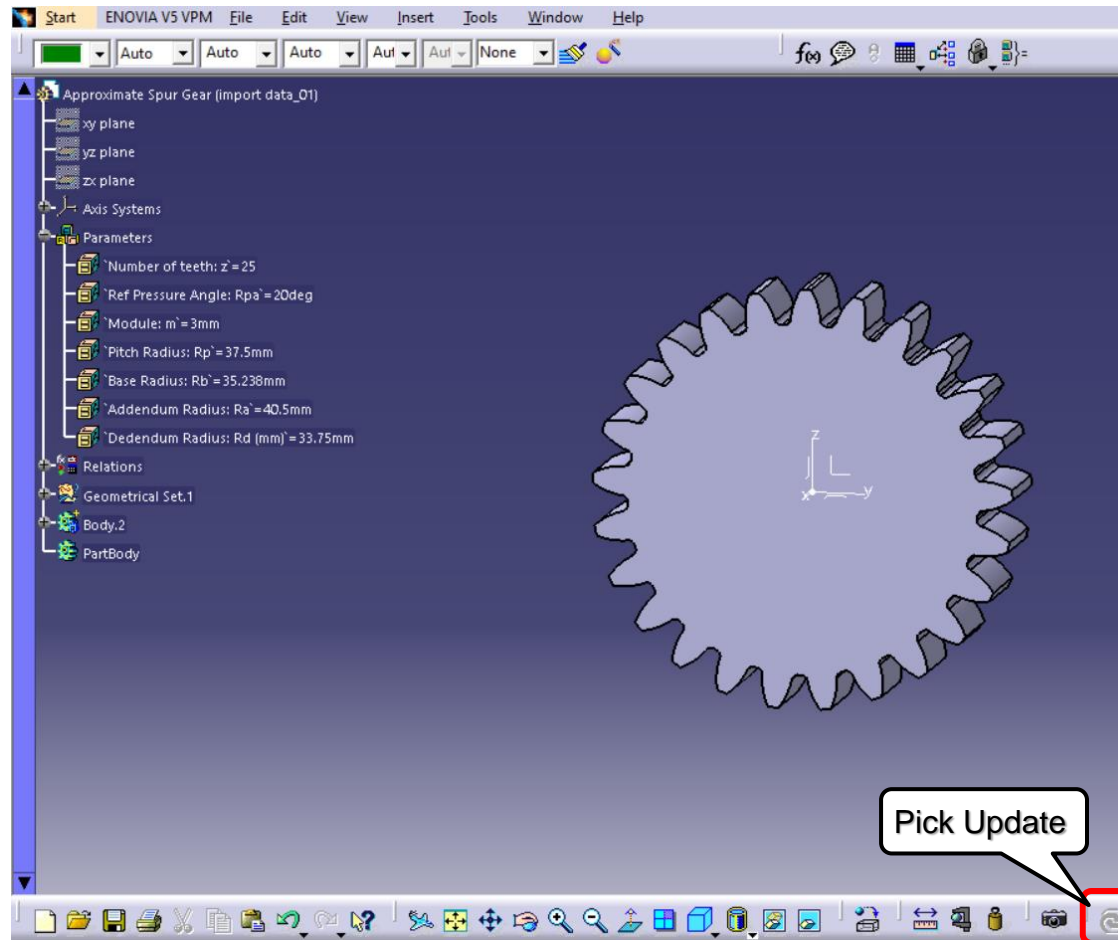
Repeat steps a-d for each of the six parameters.

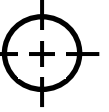
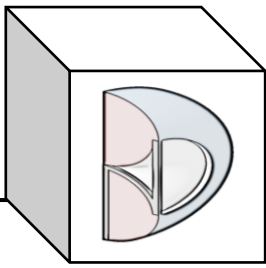


BND TechSource

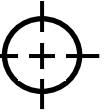
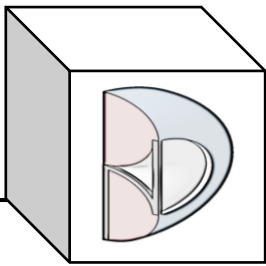


- Update the part.



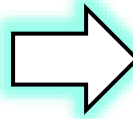


**Modify the .xls(x) or .txt file
and re-import the data to
the CATPart**

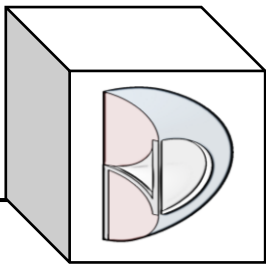


- Change the .xls(x) or txt file and re-import it.

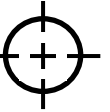
```
Approximate Spur Gear Input_[m_3-Rpa_20-z_40].txt - Notepad
File Edit Format View Help
Module: m          3mm
Ref Pressure Angle: Rpa 20.deg
Number of teeth: z    40
Symmetry Angle: s     2.25deg
Pitch diameter: Pd    120.mm
Base diameter: Bd     112.763mm
Addendum diameter: Ad 126.mm
Dedendum diameter: Dd 112.5mm
tooth radius at dedendum circle: tr    1.14mm
```



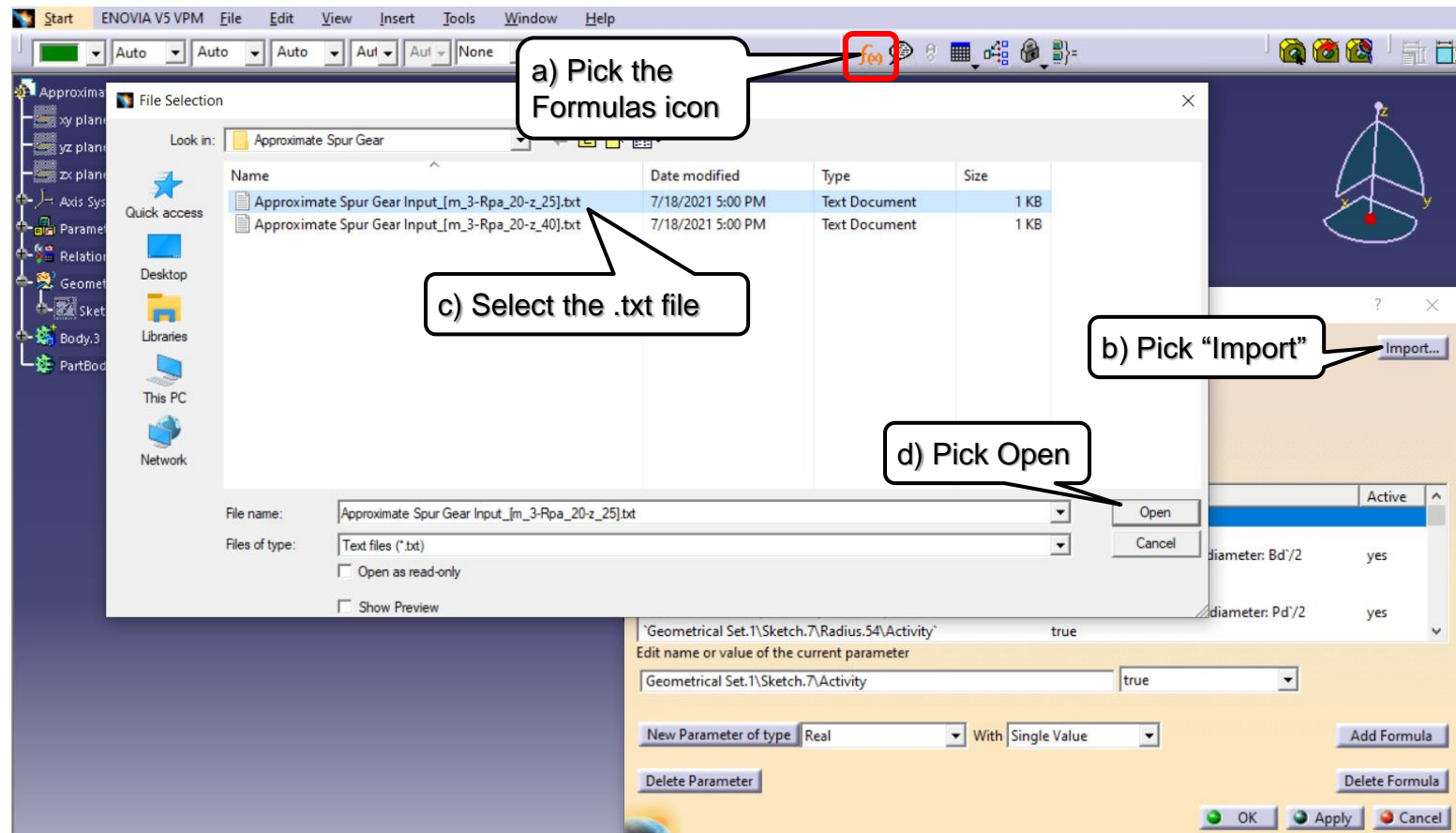
```
Approximate Spur Gear Input_[m_3-Rpa_20-z_25].txt - Notepad
File Edit Format View Help
Module: m          3mm
Ref Pressure Angle: Rpa 20.deg
Number of teeth: z    25
Symmetry Angle: s     3.6deg
Pitch diameter: Pd    75.mm
Base diameter: Bd     70.477mm
Addendum diameter: Ad  81.mm
Dedendum diameter: Dd  67.5mm
tooth radius at dedendum circle: tr    1.14mm
```

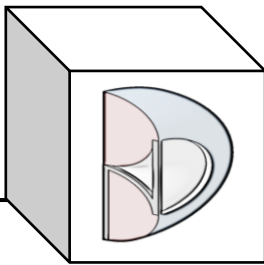


BND TechSource

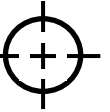


- Re-import the .xls(x) or .txt file to the CATPart.





BND TechSource



- Re-import the .xls(x) or .txt file to the CATPart.

a) Notice all of the parameters have been replaced because they had values assigned.

b) Pick OK

c) Pick OK

Import Result

Already existing parameters

- The parameter Length.6 was already existing. Its new value is going to be 3mm
- The parameter Angle.1 was already existing. Its new value is going to be 20deg
- The parameter Real.1 was already existing. Its new value is going to be 25
- The parameter Symmetry Angle: s was already existing. Its new value is going to be 3.6deg
- The parameter Length.7 was already existing. Its new value is going to be 75mm
- The parameter Length.8 was already existing. Its new value is going to be 70.477mm
- The parameter Addendum diameter: Ad was already existing. Its new value is going to be 67.5mm
- The parameter Length.10 was already existing. Its new value is going to be 67.5mm

Approximate Spur Gear (import data)

Filter On Approximate Spur Gear (import data)

Filter Name:

Filter Type: All

Double click on a parameter to edit it

Parameter	Value	Formula	Active
'Geometrical Set.1\Sketch.7\Activity'	true		
'Geometrical Set.1\Sketch.7\AbsoluteAxis\Activity'	true		
'Geometrical Set.1\Sketch.7\Radius.53\Radius'	56.382mm	= 'Base diameter: Bd'/2	yes
'Geometrical Set.1\Sketch.7\Radius.53\Activity'	true		
'Geometrical Set.1\Sketch.7\Radius.53\Mode'	Constrained		
'Geometrical Set.1\Sketch.7\Radius.54\Radius'	60mm	= 'Pitch diameter: Pd'/2	yes
'Geometrical Set.1\Sketch.7\Radius.54\Activity'	true		

Edit name or value of the current parameter

Geometrical Set.1\Sketch.7\Activity true

New Parameter of type Real With Single Value

Delete Parameter

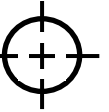
Add Formula

Delete Formula

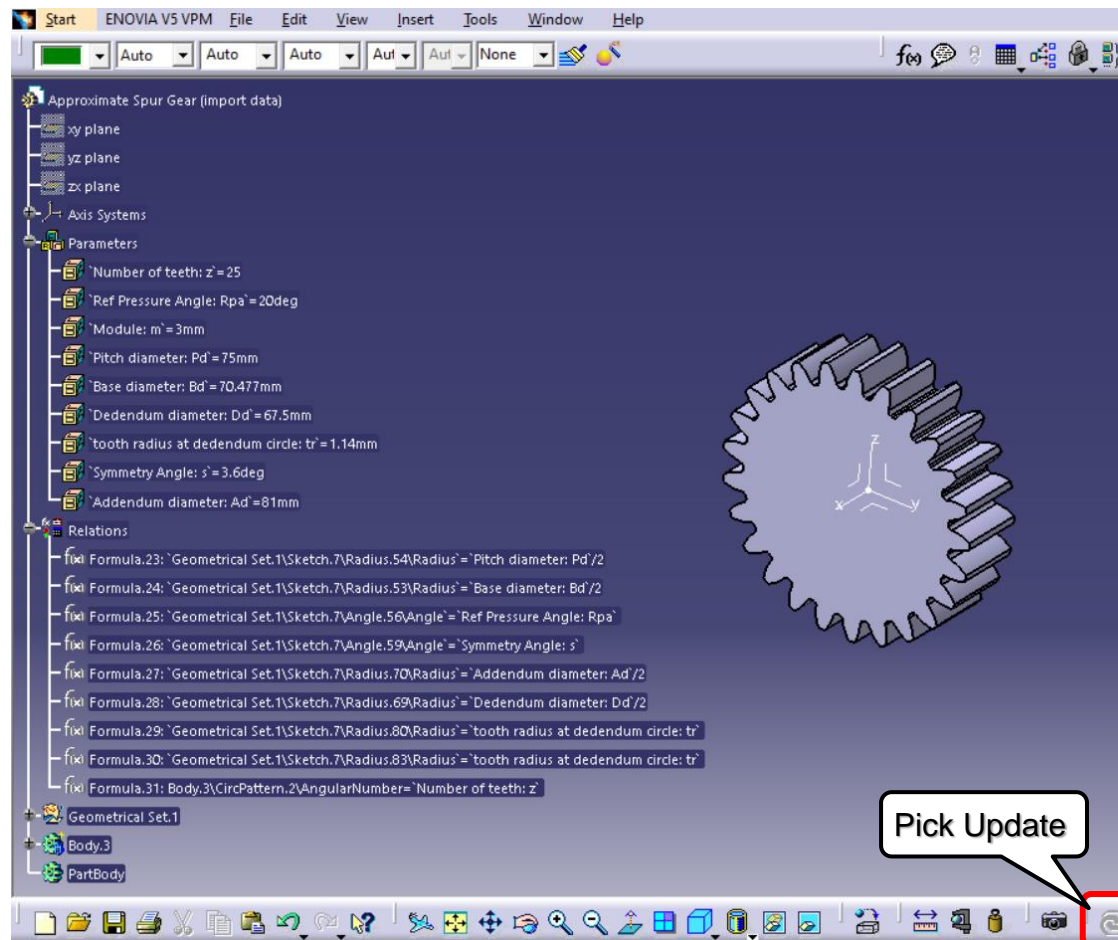
OK Apply Cancel

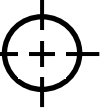
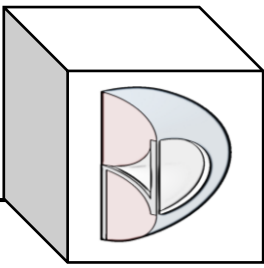


BND TechSource

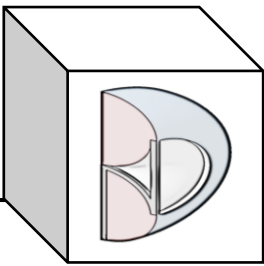


- Update the part.

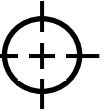




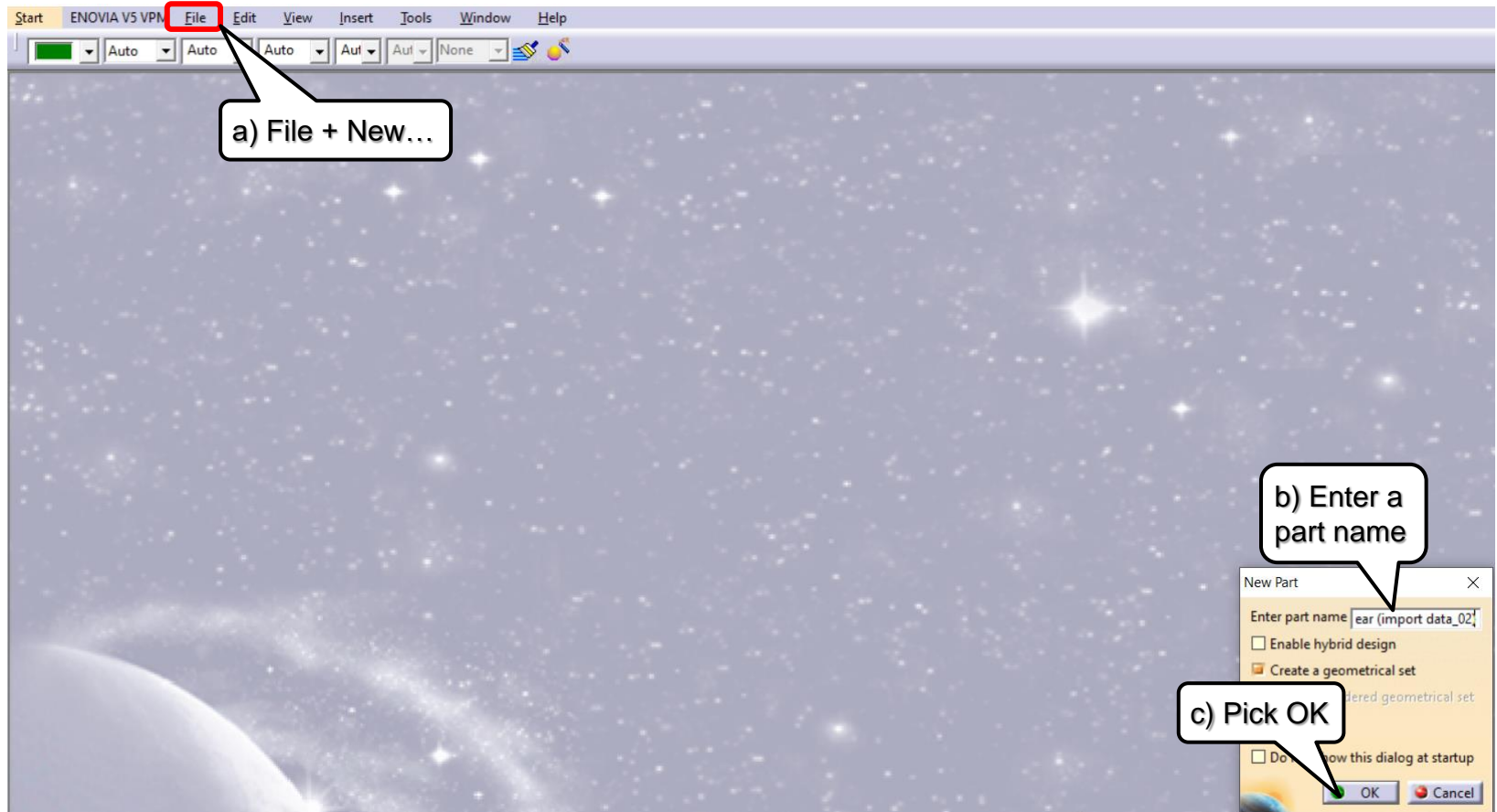
Approach 2: Create a New Part and Import the .xls(x) or .txt file from the start

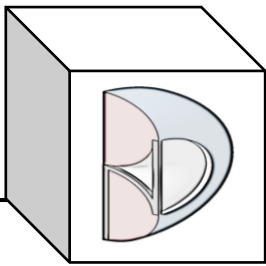


BND TechSource

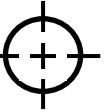


- Create a new CATPart.

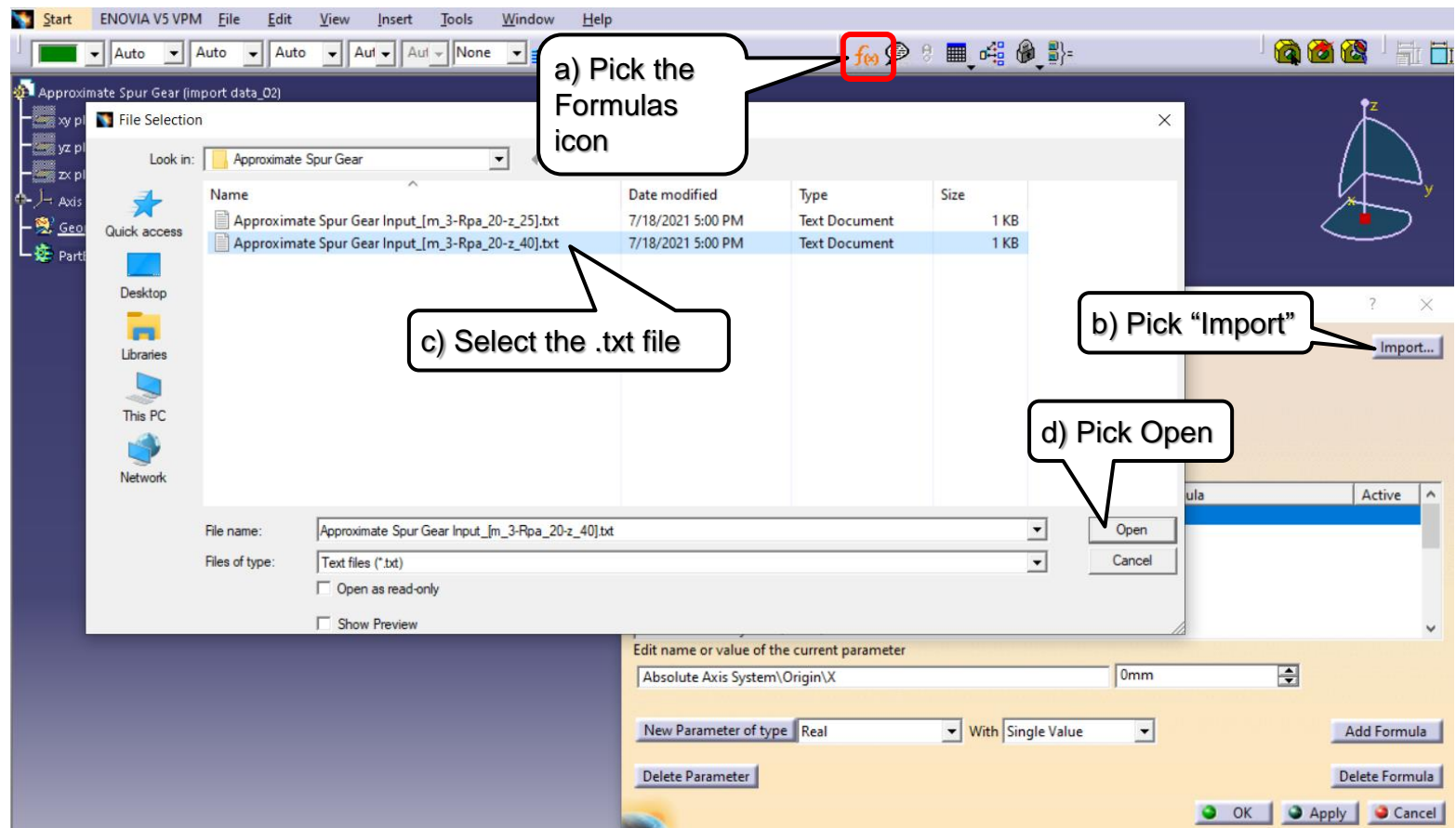


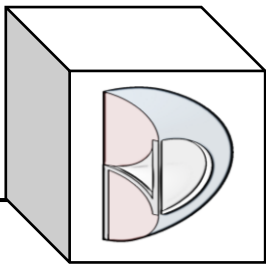


BND TechSource

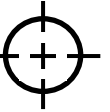


- Connect the .xls(x) or .txt file to the CATPart.





BND TechSource



- Connect the .xls(x) or .txt file to the CATPart.

The screenshot shows the CATIA software interface with the 'Approximate Spur Gear (import_data_02)' feature tree. The 'Import Result' dialog box is open, displaying a table of created parameters. A callout 'a) Pick OK' points to the OK button in the dialog. The 'Approximate Spur Gear' dialog box is also open, showing a table of parameters. A callout 'b) Pick OK' points to the OK button in the dialog.

Import Result Dialog:

Name	Value	Formula	Comment
Module: m	3mm		
Ref Pressure Angle: Rpa	20deg		
Number of teeth: z	40		
Symmetry Angle: s	2.25deg		
Pitch diameter: Pd	120mm		
Base diameter: Bd	112.763mm		
Addendum diameter: Ad	126mm		
Dedendum diameter: Dd	112.5mm		
tooth radius at dedendum circle: tr	1.14mm		

Approximate Spur Gear Dialog:

Filter On Approximate Spur Gear (import_data_02)

Filter Name:

Filter Type:

Double click on a parameter to edit it

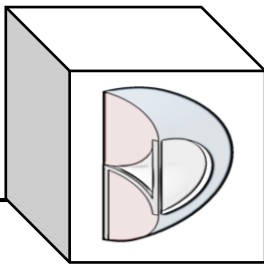
Parameter	Value	Formula	Active
'Absolute Axis System\Origin\X'	0mm		
'Absolute Axis System\Origin\Y'	0mm		
'Absolute Axis System\Origin\Z'	0mm		
'Absolute Axis System\XAxis\X'	1		
'Absolute Axis System\XAxis\Y'	0		
'Absolute Axis System\XAxis\Z'	0		
'Absolute Axis System\YAxis\X'	0		

Edit name or value of the current parameter

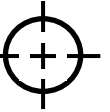
New Parameter of type: With:

Delete Parameter

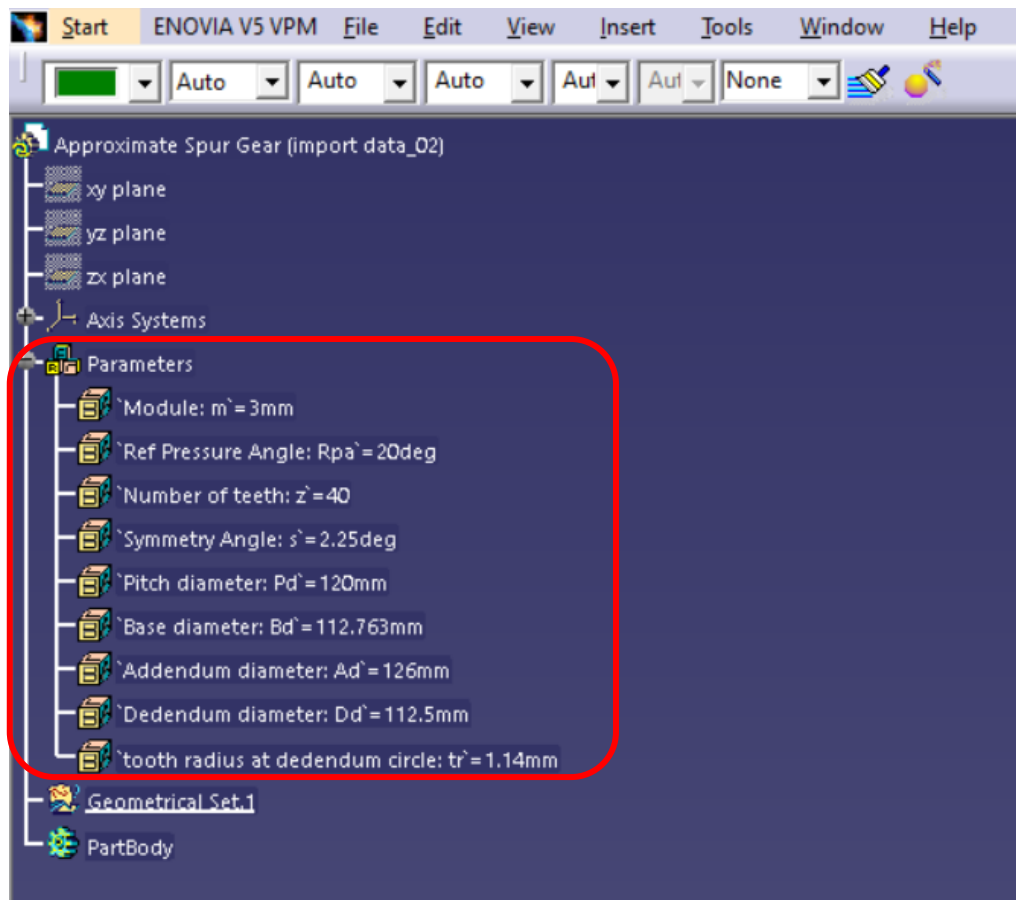
OK Apply Cancel

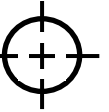
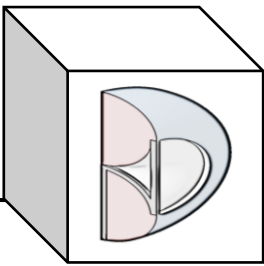


BND TechSource

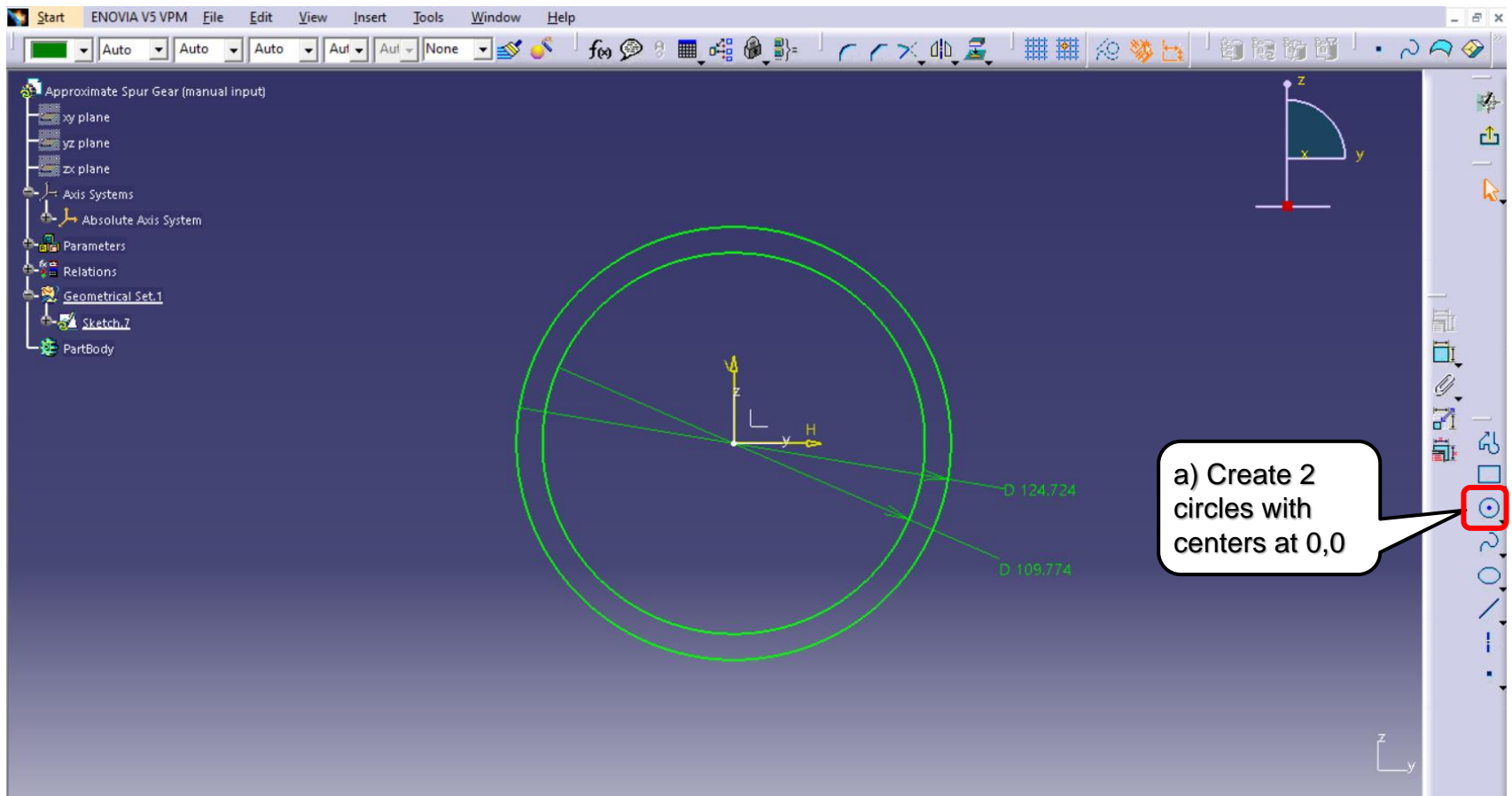


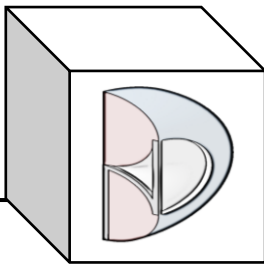
- Notice all the parameters are created and ready to use.





- Create the pitch and base circles in a sketch.

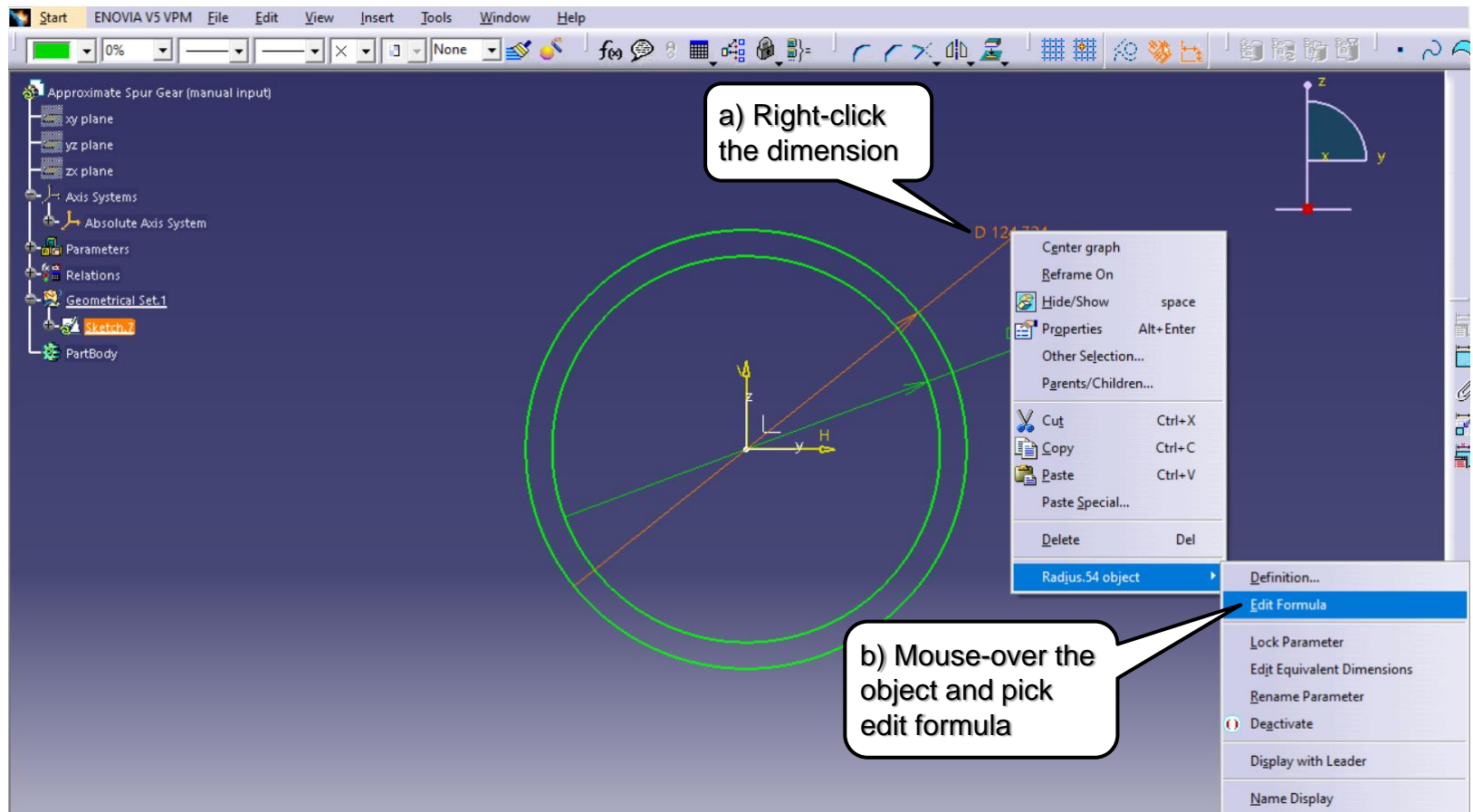


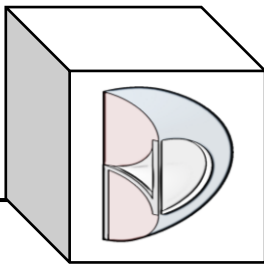


BND TechSource

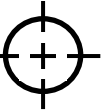


- Apply the formula (Pitch diameter: Pd) to the pitch circle.





BND TechSource



- Apply the formula (Pitch diameter: Pd) to the pitch circle.

The screenshot shows the CATIA V5 Formula Editor interface. The formula bar contains the text: `Geometrical Set.1\Sketch.7\Radius.54\Radius`. Below the formula bar, the 'Dictionary' tab is selected, showing a list of parameters. The 'Length' parameter is highlighted, and its value is set to `Pitch diameter: Pd`. The 'Members of Length' list on the right also shows `Pitch diameter: Pd` as the selected member. The formula bar now displays `Pitch diameter: Pd` and the value `120mm`. The 'OK' button is highlighted.

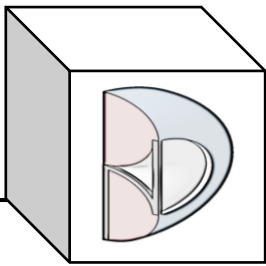
b) Divide by 2 because CATIA sees Diameters as Radius objects

a) Double pick the formula Pitch diameter: Pd

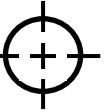
c) Pick OK

D 124.724 f(x)

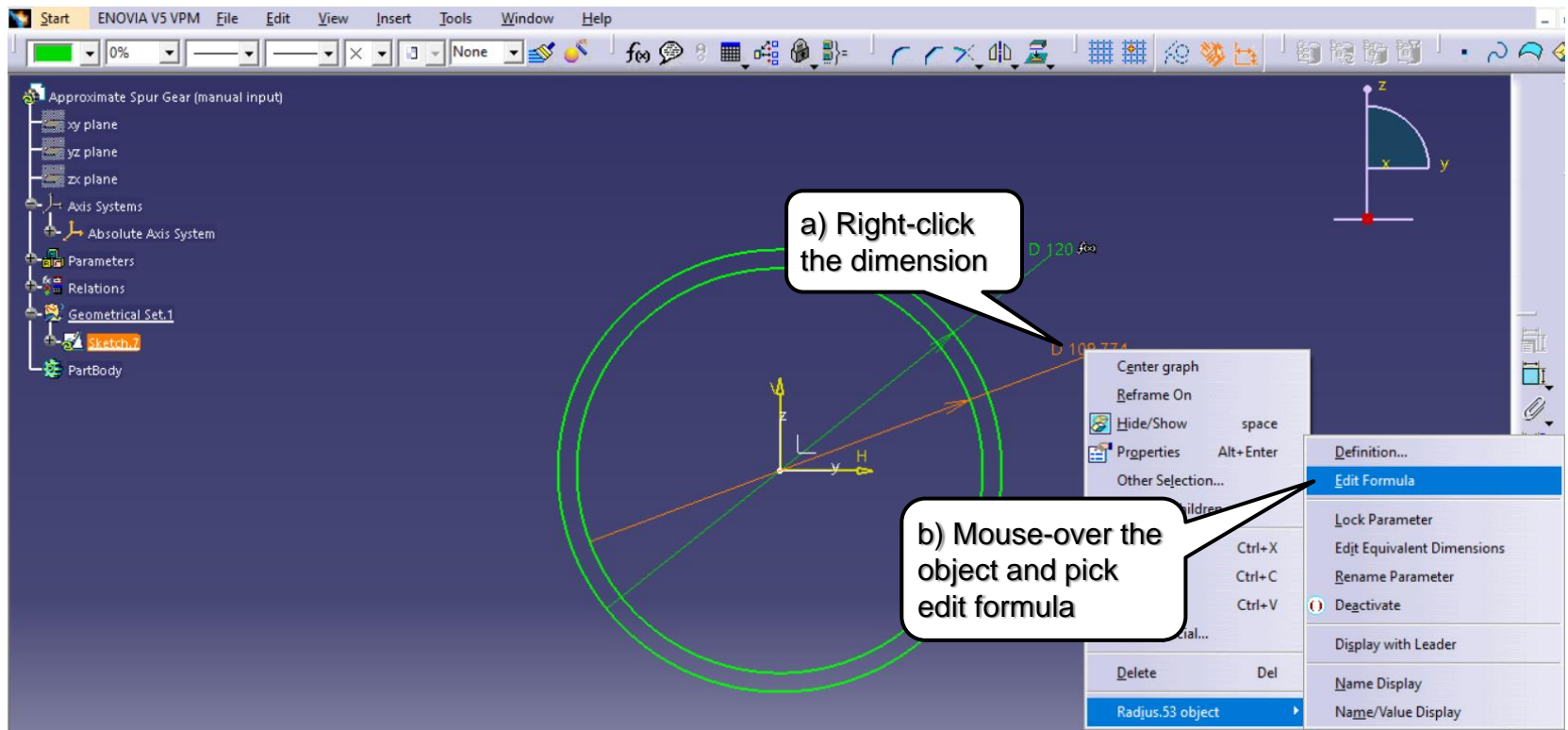
D 109.774

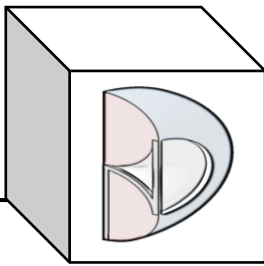


BND TechSource

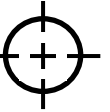


- Apply the formula (Base diameter: B_d) to the base circle.

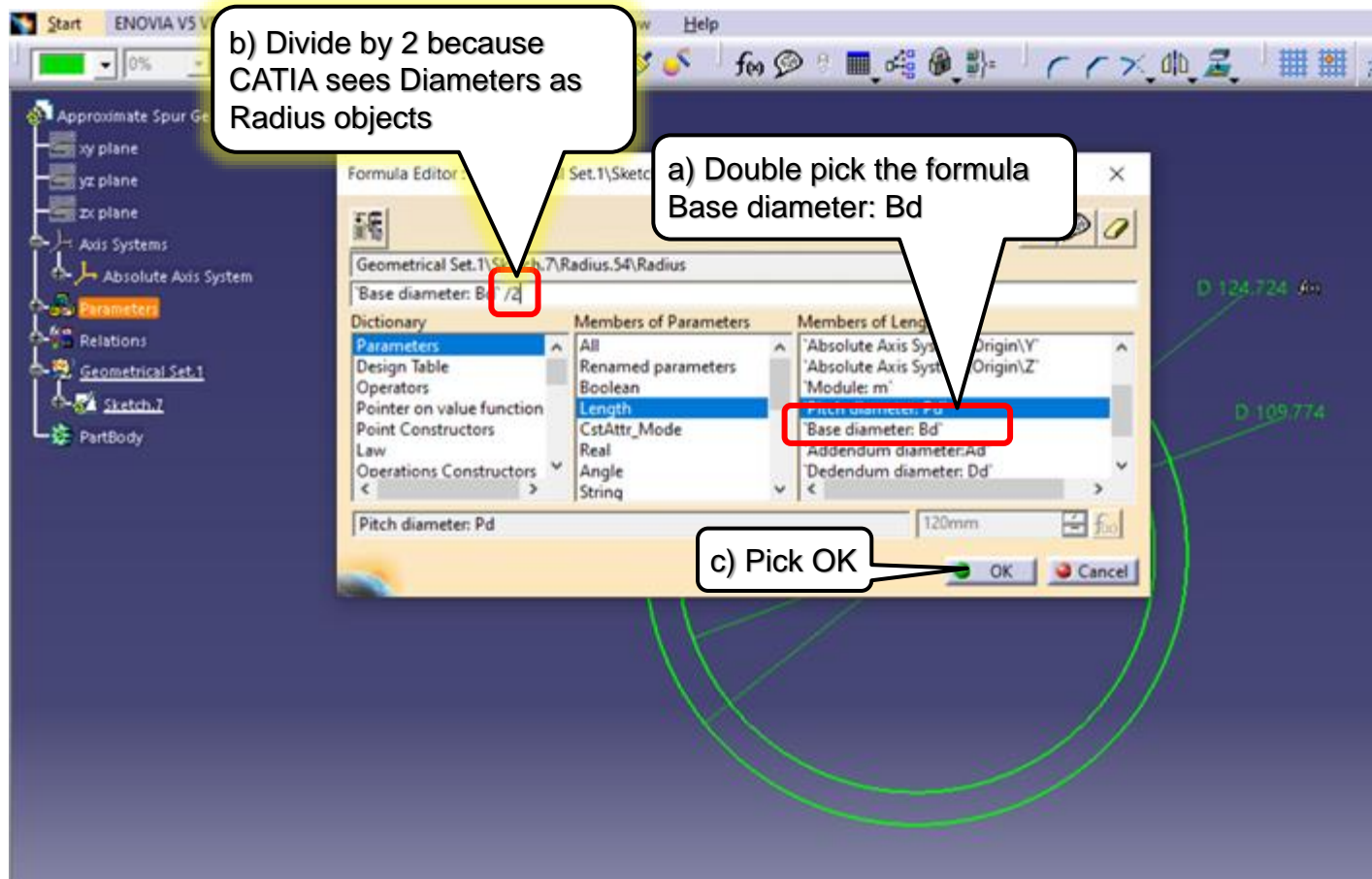


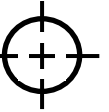
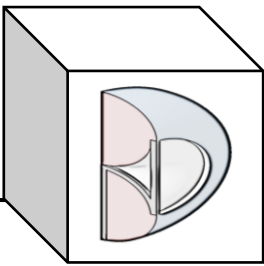


BND TechSource

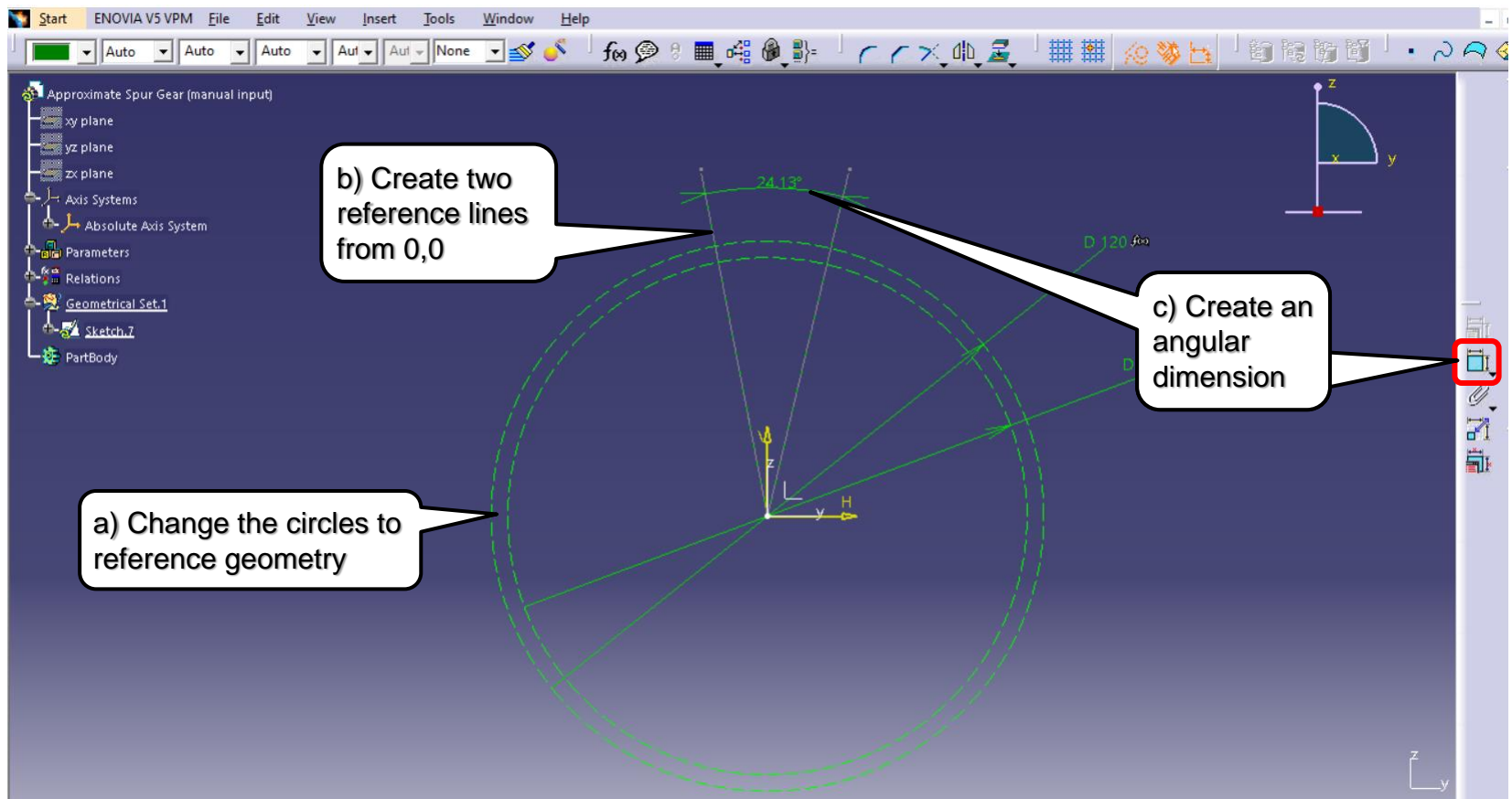


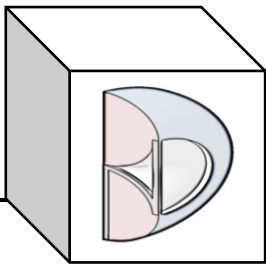
- Apply the formula (Base diameter: Bd) to the base circle.



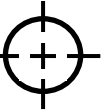


- Create tooth geometry reference lines.

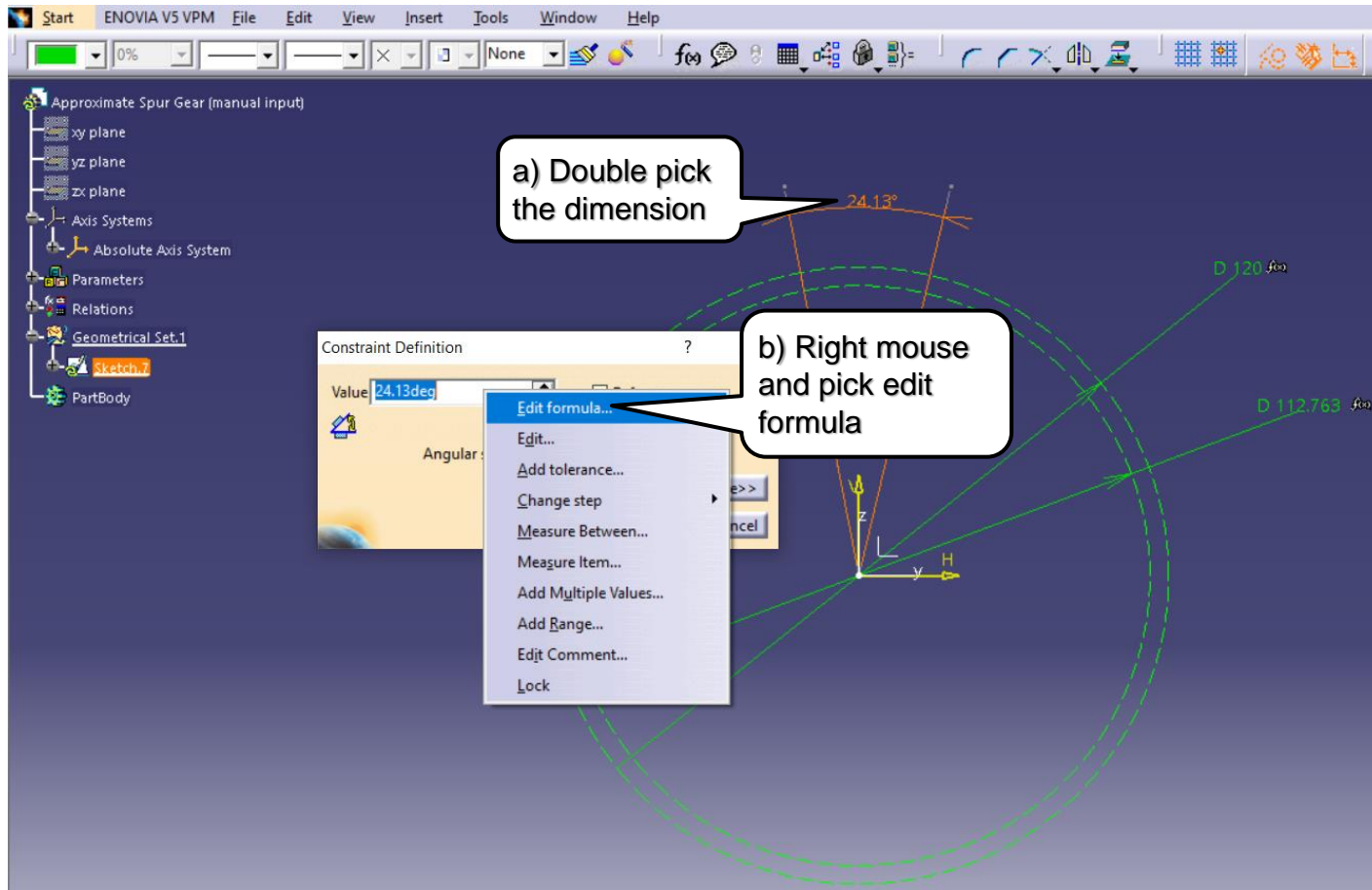


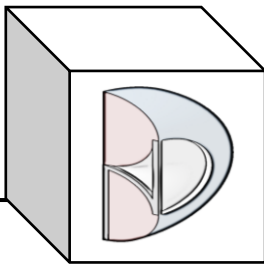


BND TechSource

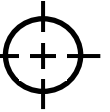


- Apply Ref Pressure Angle: Rpa.

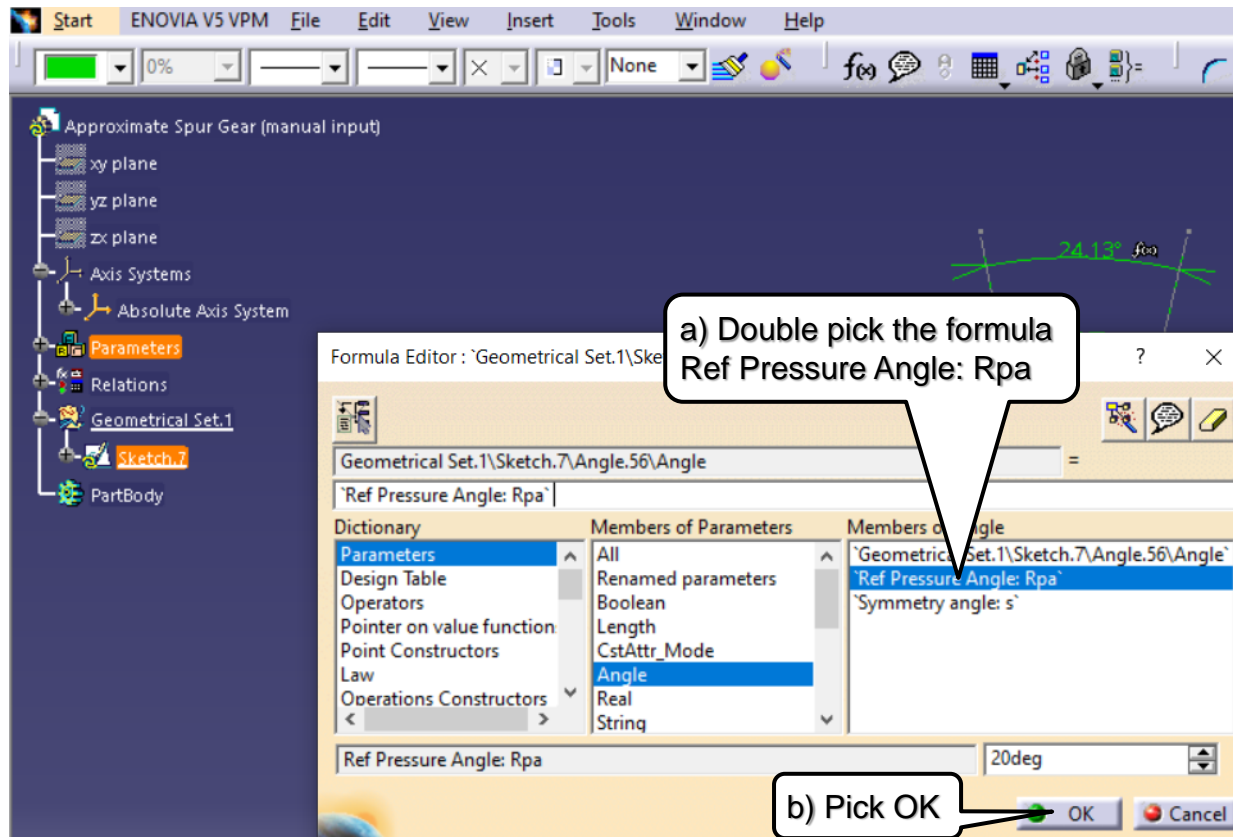


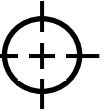
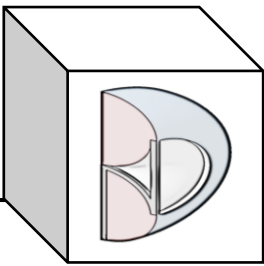


BND TechSource

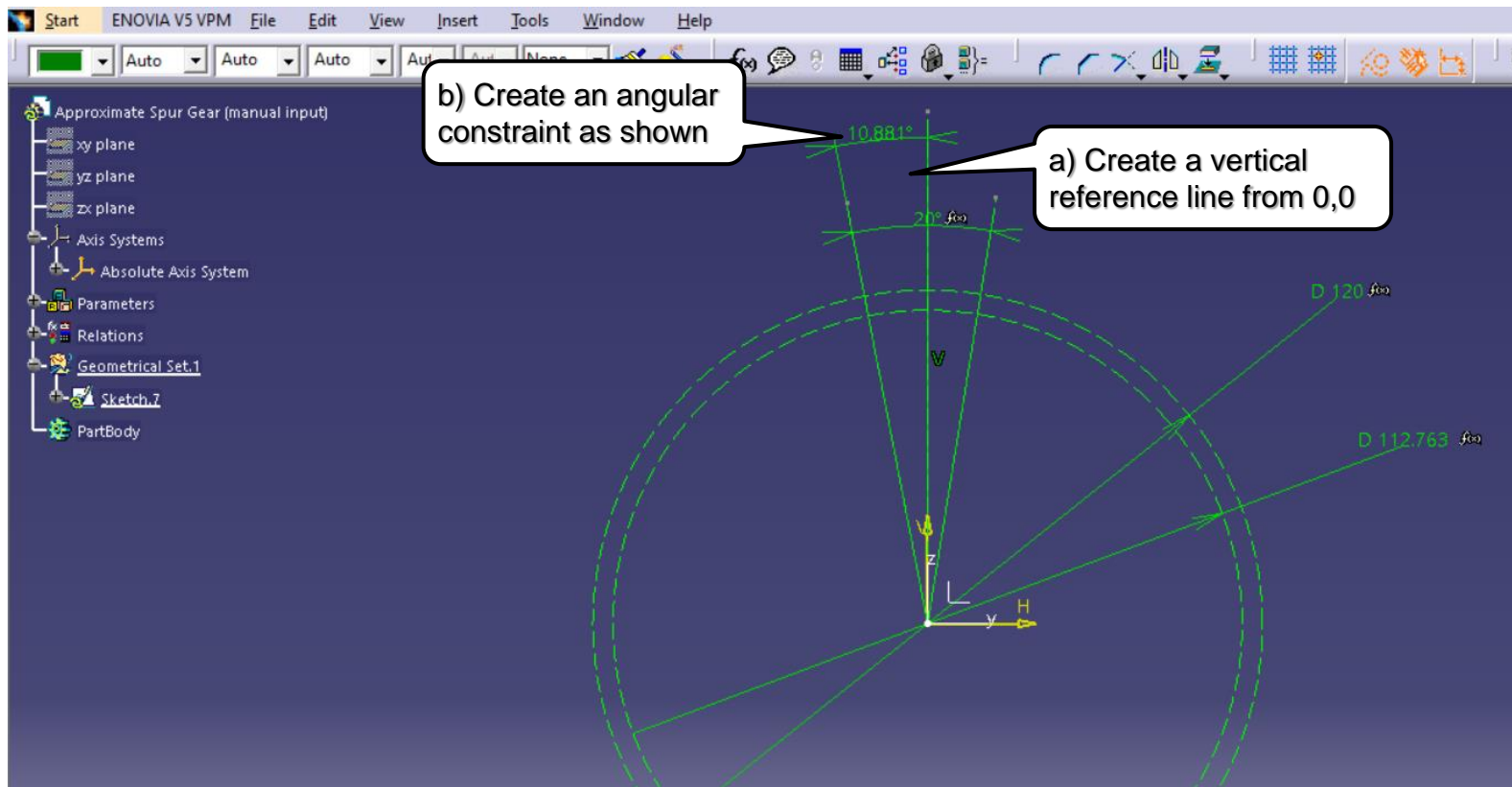


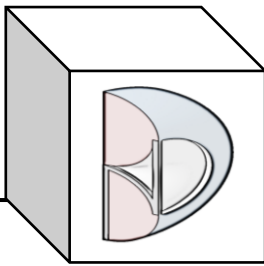
- Apply Ref Pressure Angle: Rpa.



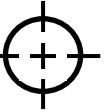


- Create tooth geometry reference lines.

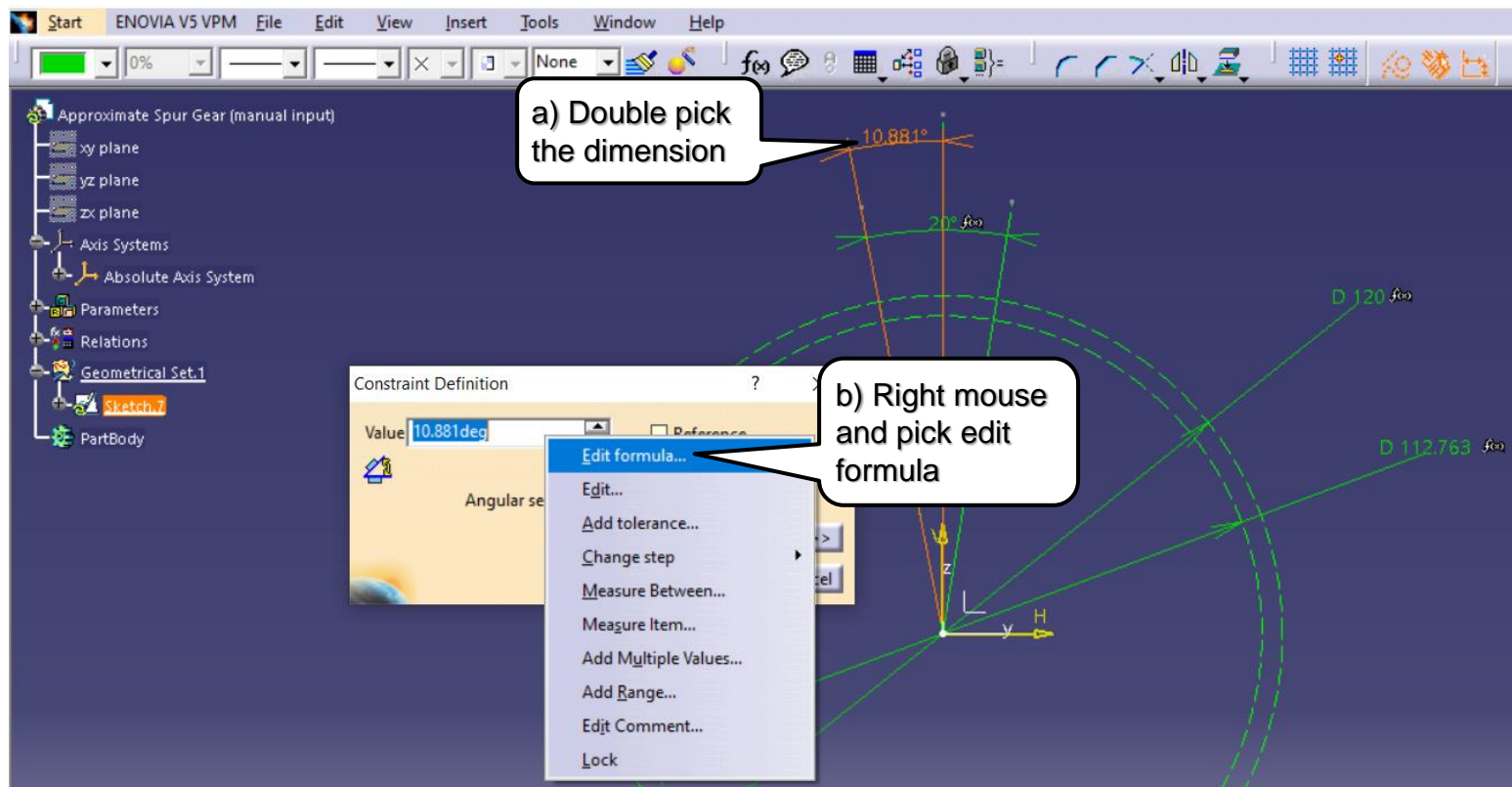


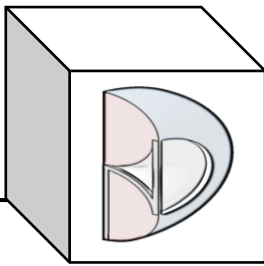


BND TechSource

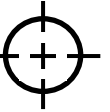


- Apply Symmetry angle: s

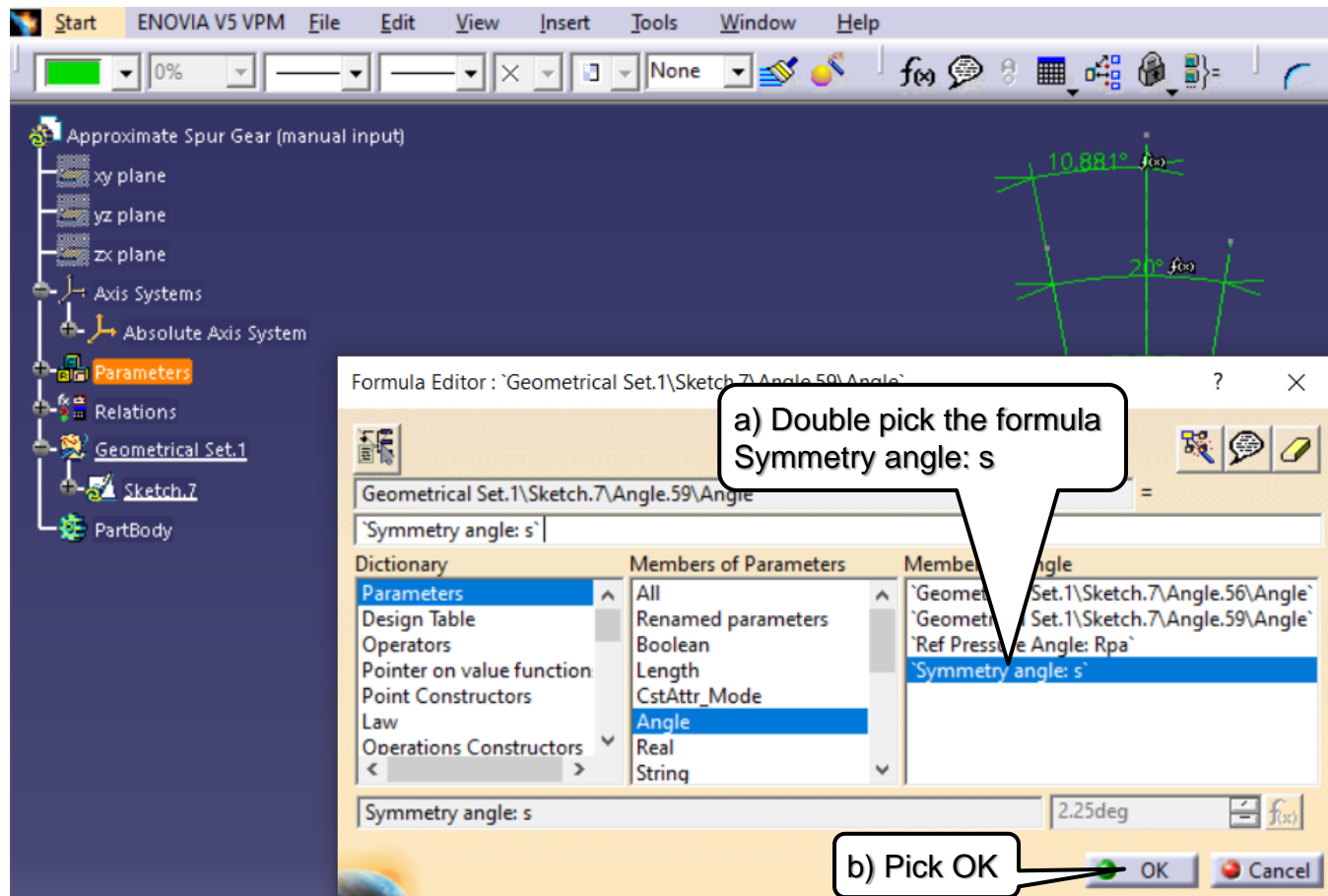


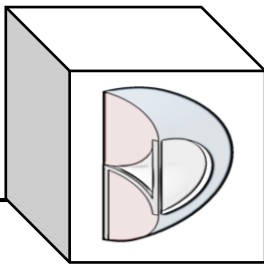


BND TechSource

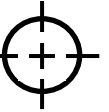


- Apply Symmetry angle: s

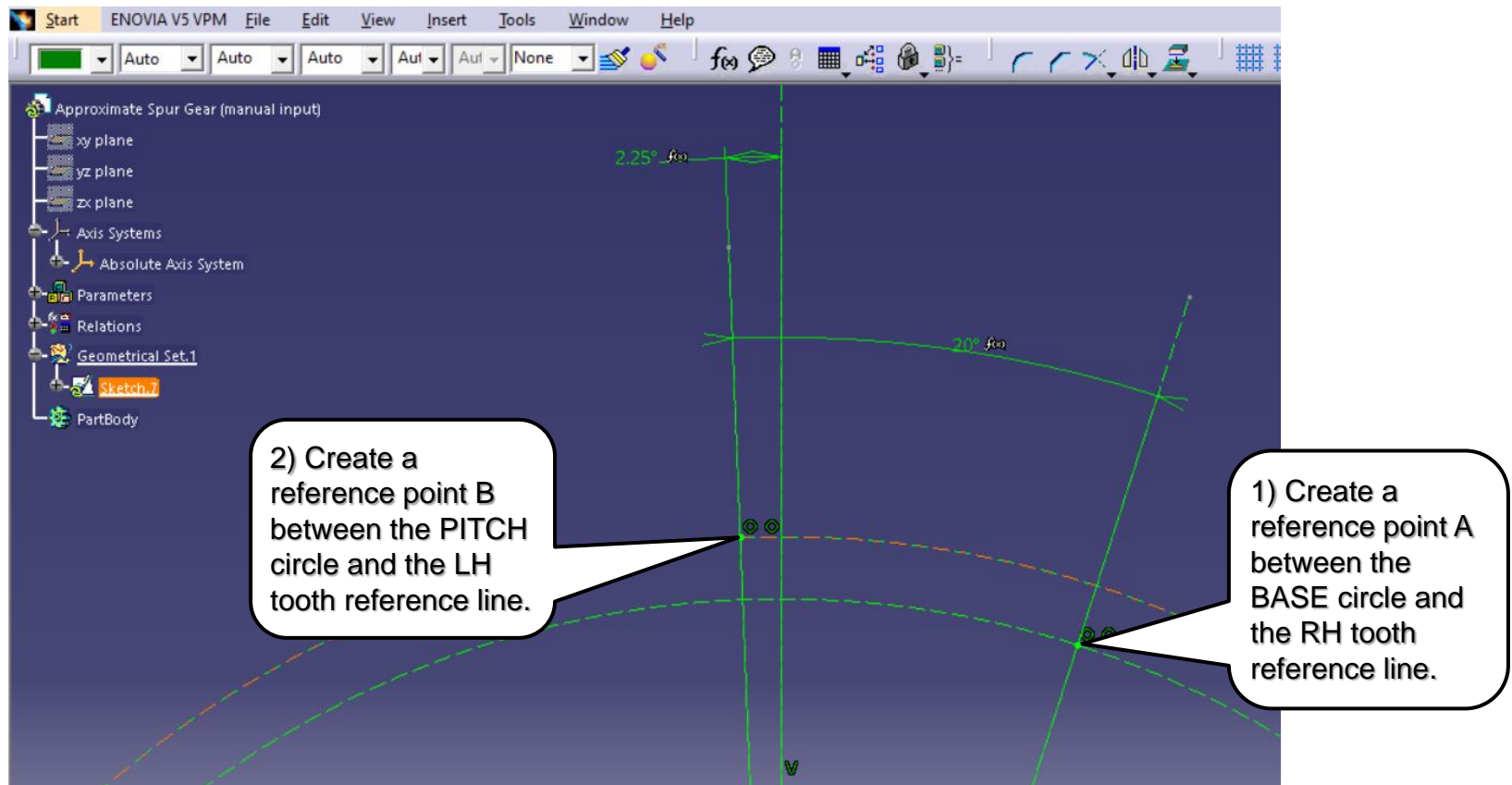


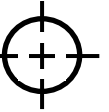


BND TechSource

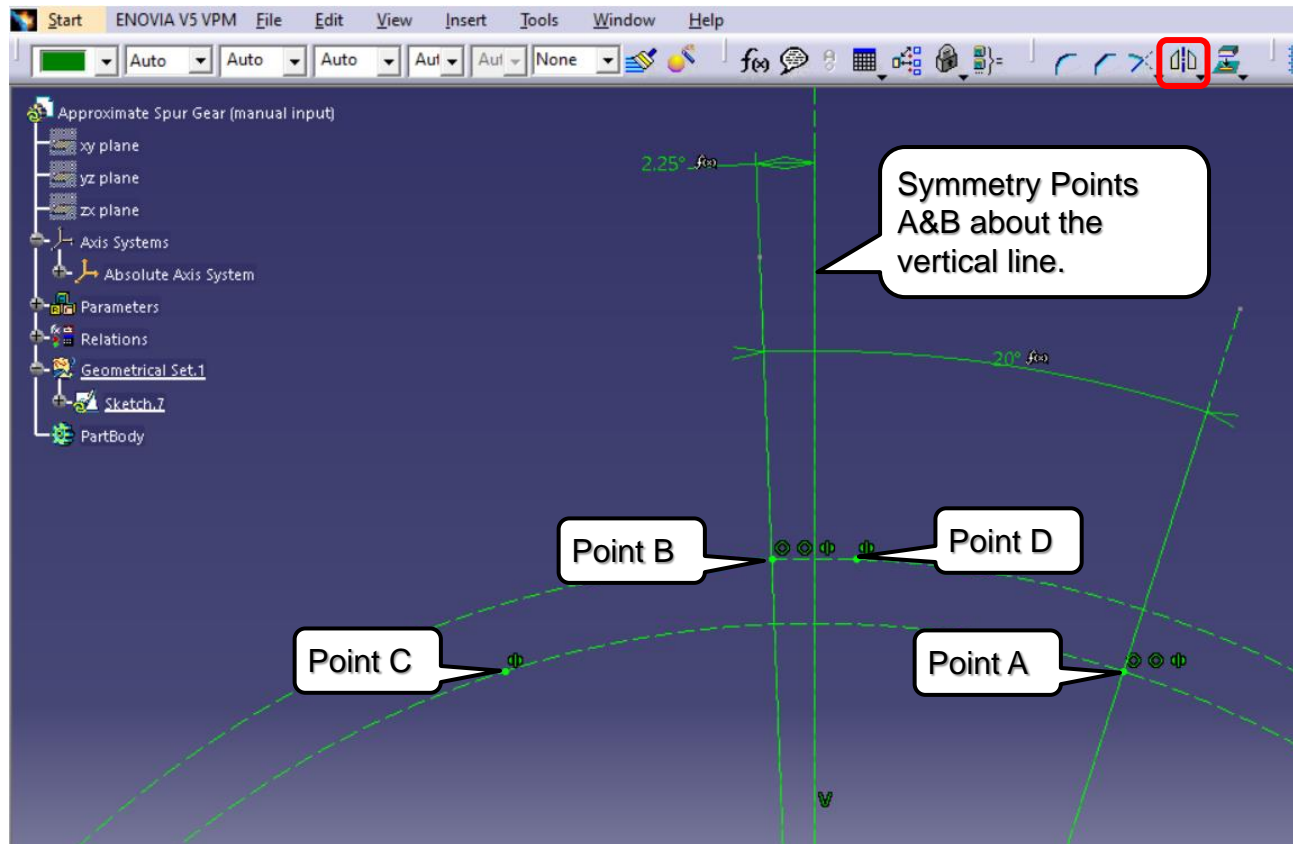


- Create reference points A & B for the construction of the approximated tooth profile.



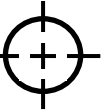


- Create symmetrical reference points C & D for the construction of the approximated tooth profile.

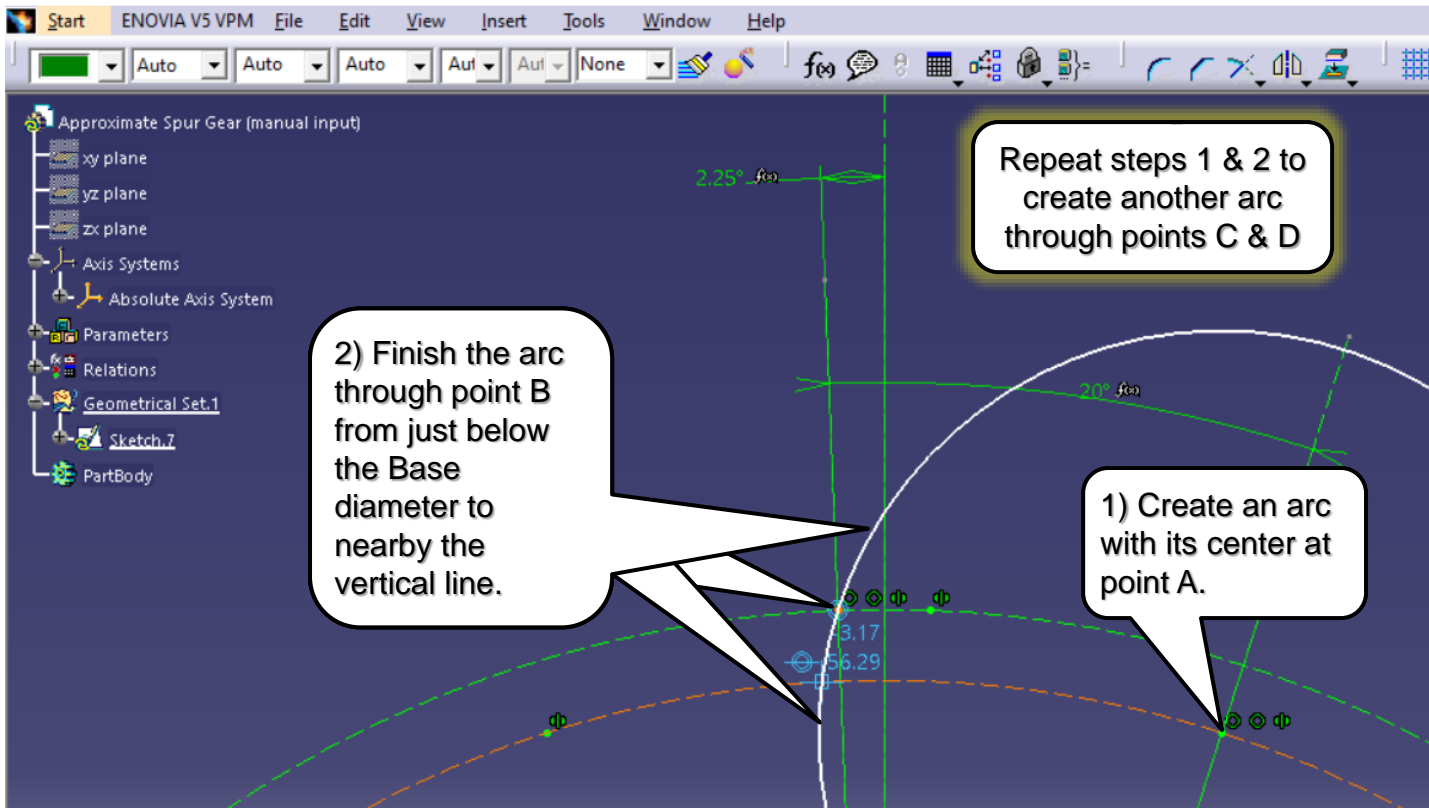


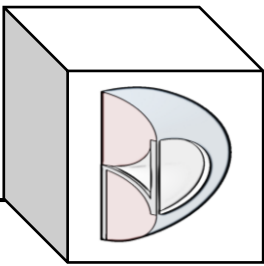


BND TechSource

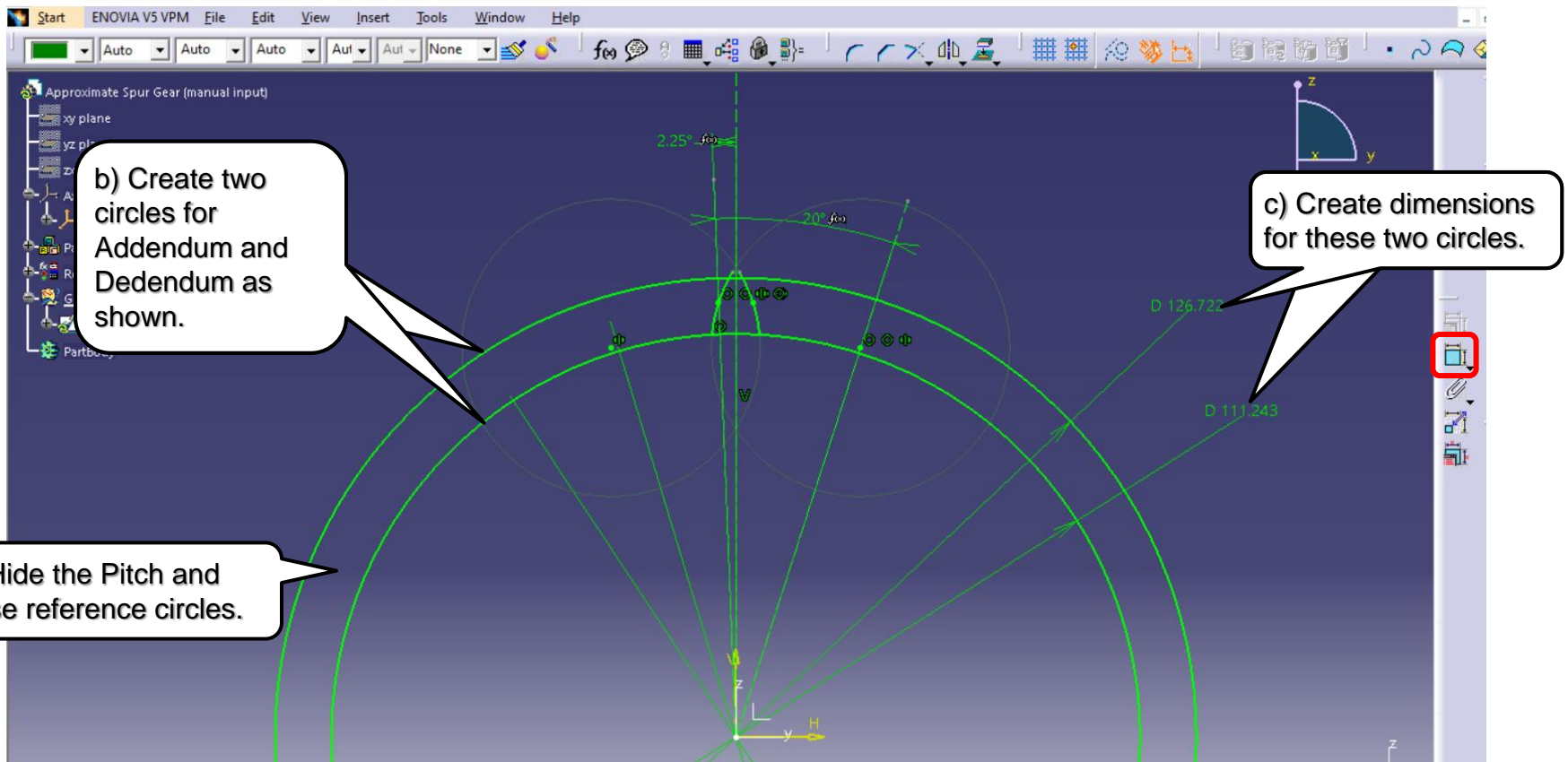


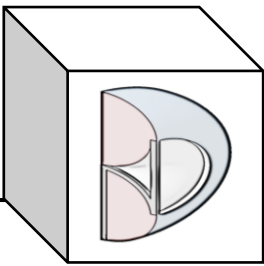
- Create the approximated (circular) tooth profile. *Actual* tooth profile would be an *involute* curve.



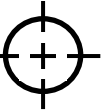


- Create the Addendum and Dedendum construction circles.

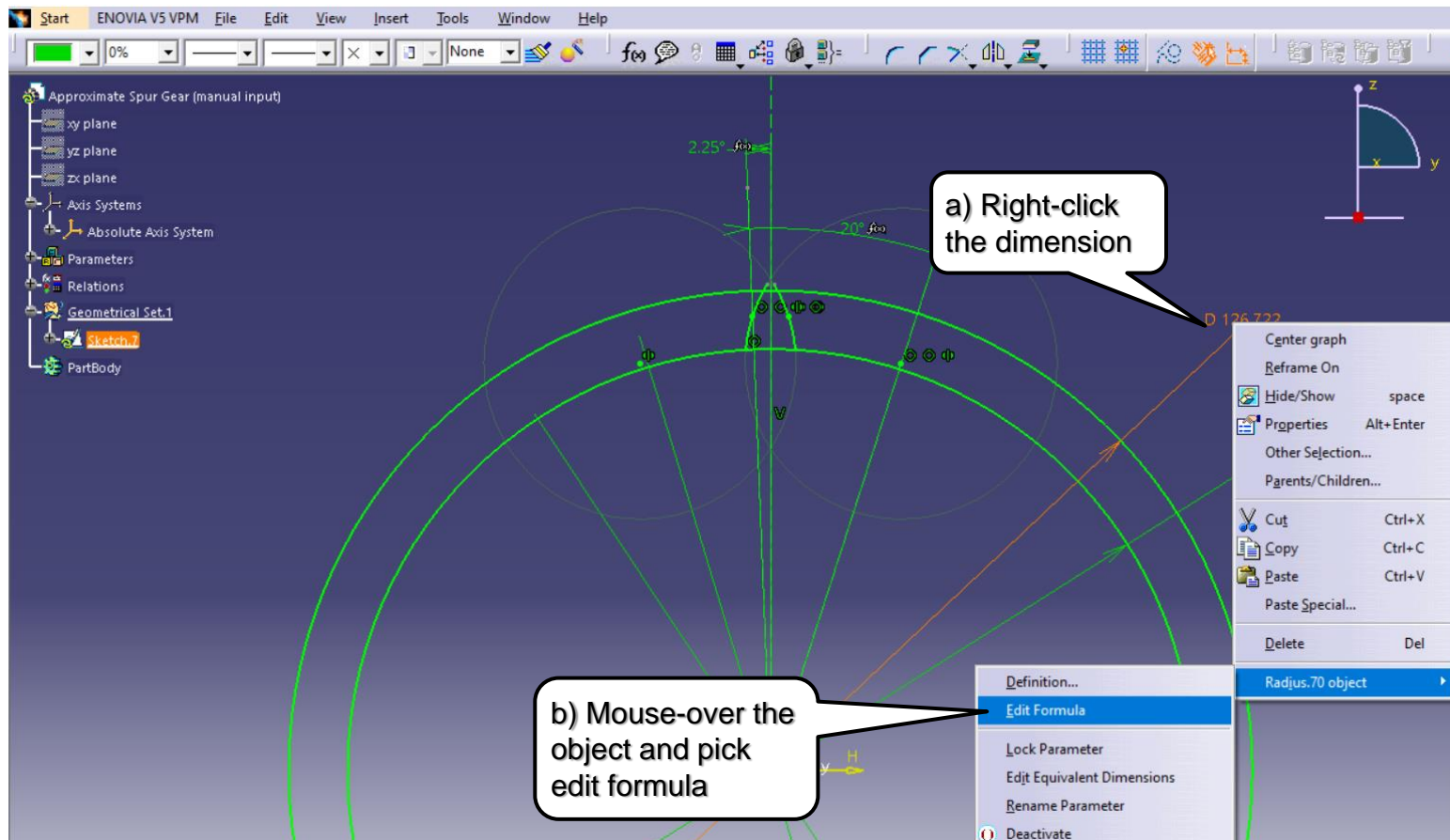


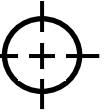
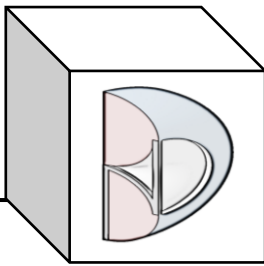


BND TechSource



- Apply the formula (Addendum diameter: A_d) to the addendum circle.





- Apply the formula (Addendum diameter: Ad) to the addendum circle.

b) Divide by 2 because CATIA sees Diameters as Radius objects

a) Double pick the formula Addendum diameter: Ad

c) Pick OK

Formula Editor: Geometrical Set.1\Sketch.7

Geometrical Set.1\Sketch.7 Radius.70\Radius

'Addendum diameter:Ad' /2

Dictionary

- Parameters
- Design Table
- Operators
- Pointer on value function
- Point Constructors
- Law
- Operations Constructors

Members of Parameters

- All
- Renamed parameters
- Boolean
- Length
- CstAttr_Mode
- Angle
- Real
- String

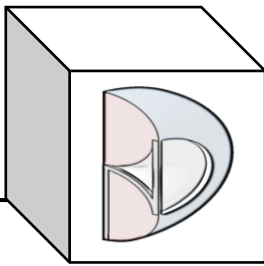
Members of Letters

- 'Module: m'
- 'Pitch diameter: P'
- 'Base diameter: Bd'
- 'Addendum diameter: Ad'
- 'Dedendum diameter: Dd'
- 'tooth radius at dedendum circle: tr'

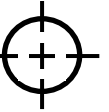
Addendum diameter:Ad

126mm

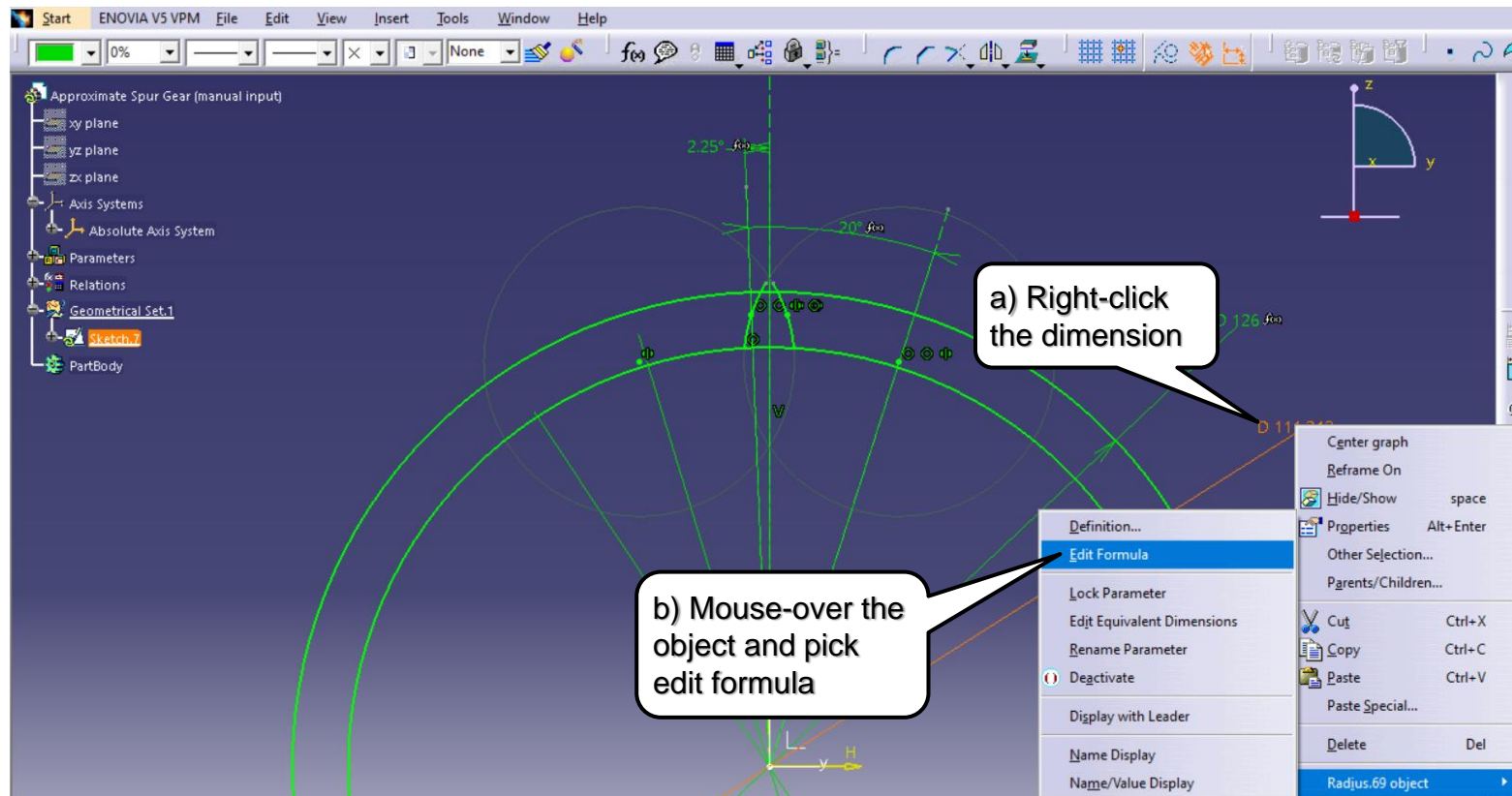
OK Cancel

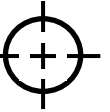
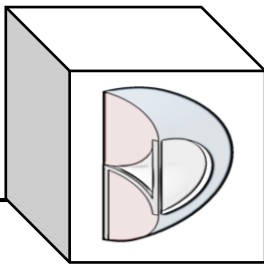


BND TechSource



- Apply the formula (Dedendum diameter: D_d) to the dedendum circle.





- Apply the formula (Dedendum diameter: Dd) to the dedendum circle.

b) Divide by 2 because CATIA sees Diameters as Radius objects

a) Double pick the formula Dedendum circle radius: Rd

c) Pick OK

Start ENOVIA V5 VPM File Edit View Insert Tools Window Help

Approximate Spur Gear (manual input)

xy plane

yz plane

zx plane

Axis Systems

Absolute Axis System

Parameters

Relations

Geometrical Set.1

Sketch.7

PartBody

Geometrical Set.1\Sketch.7\Radius.69\Radius

'Dedendum diameter: Dd' /2

Dictionary

Parameters

Design Table

Operators

Pointer on value function

Point Constructors

Law

Operations Constructors

Members of Parameters

All

Renamed parameters

Boolean

Length

CstAttr_Mode

Angle

Real

String

Members of Length

'Module: m'

'Pitch diameter: Pd'

'Base diameter: Bd'

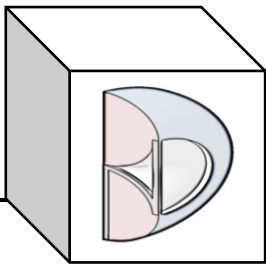
'Addendum diameter: Ad'

'Dedendum diameter: Dd'

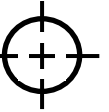
'tooth radius at dedendum circle: tr'

Dedendum diameter: Dd 112.5mm

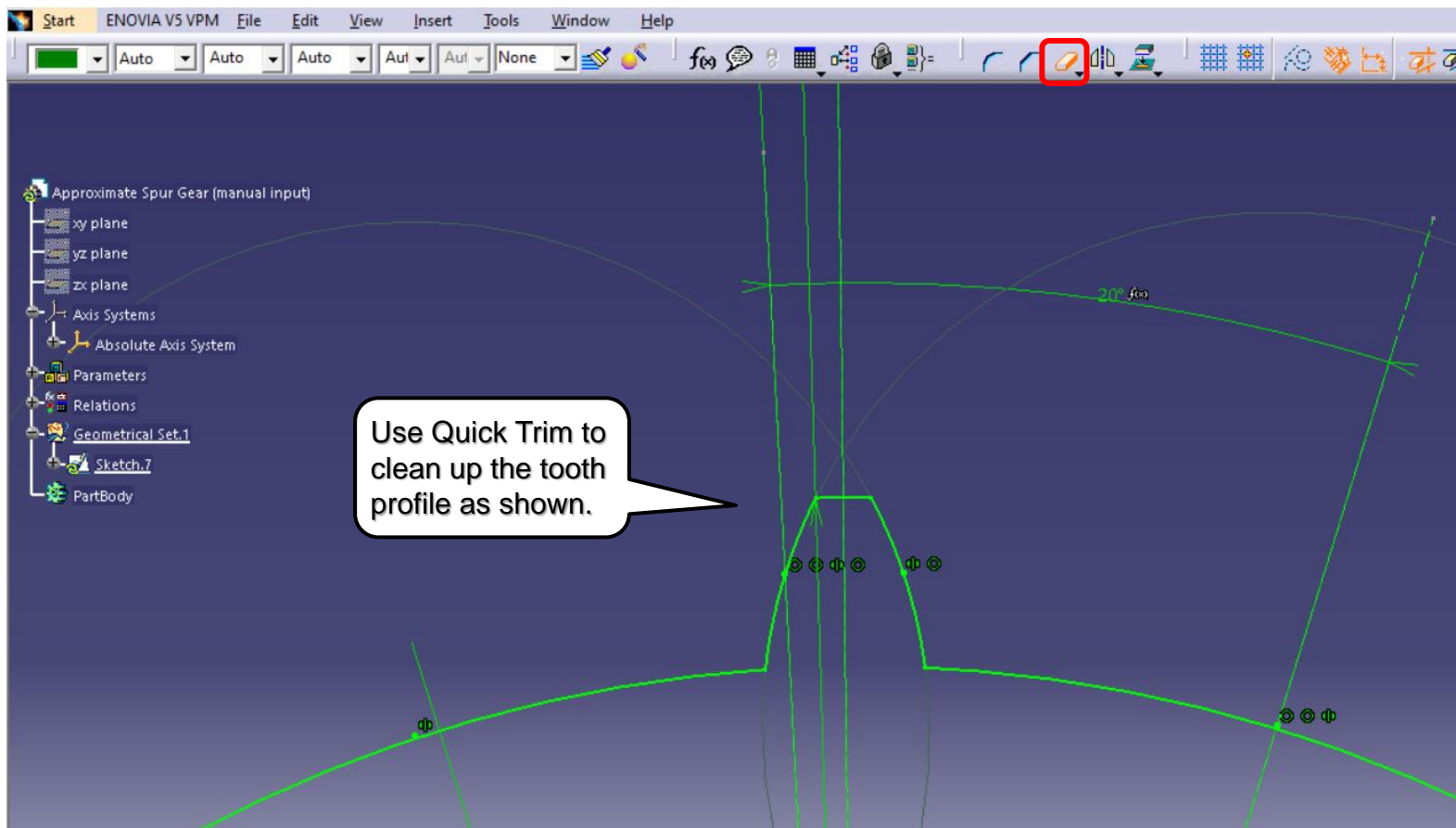
OK Cancel



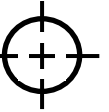
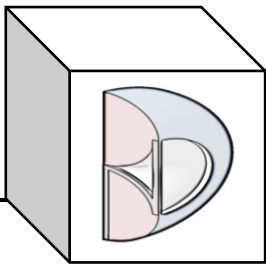
BND TechSource



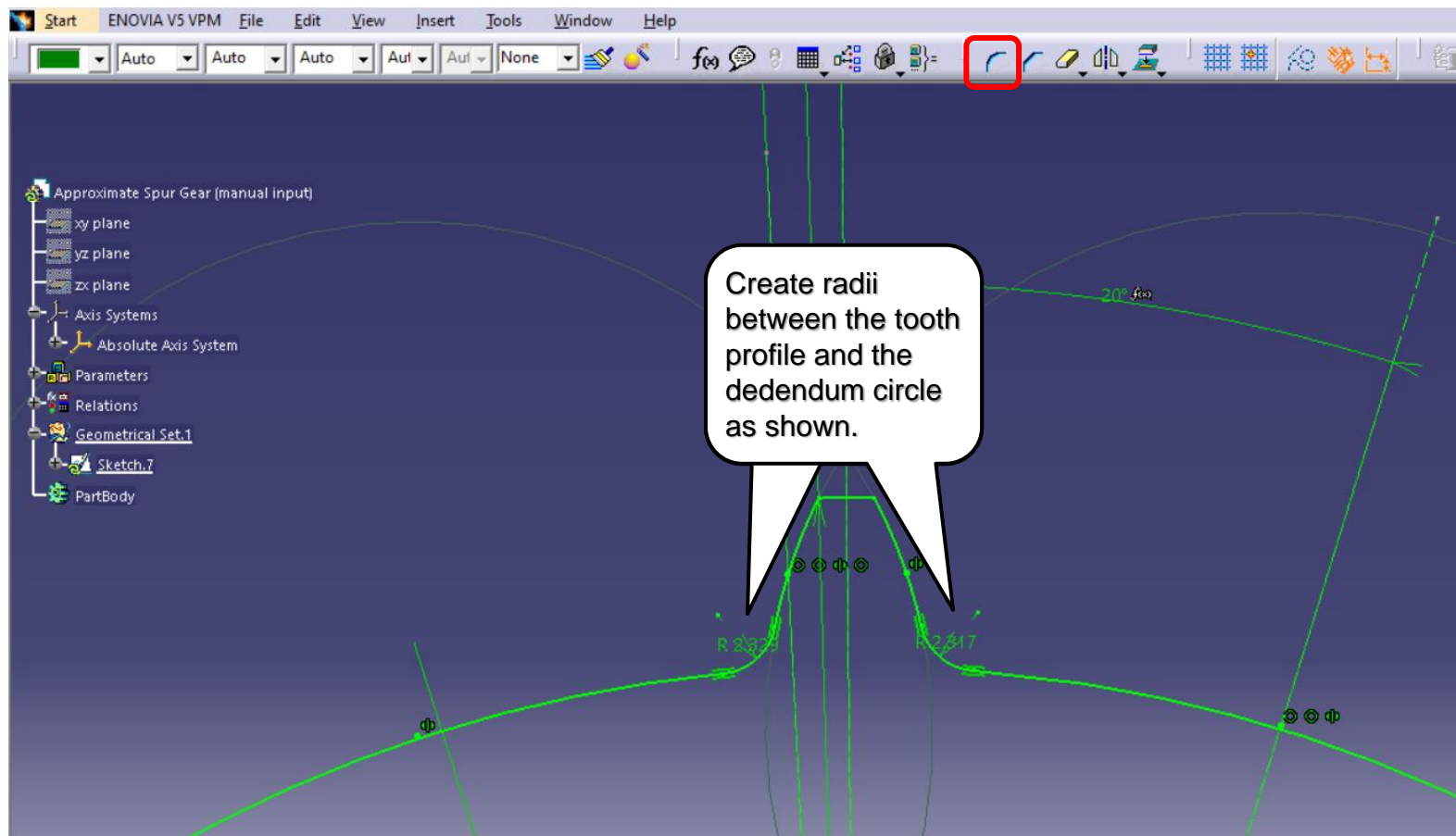
- Clean up the tooth profile.

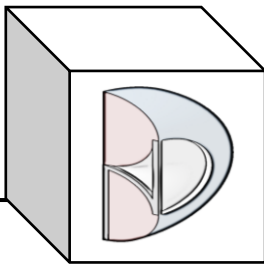


Use Quick Trim to clean up the tooth profile as shown.



- Create the radius between the tooth profile and the dedendum circle.

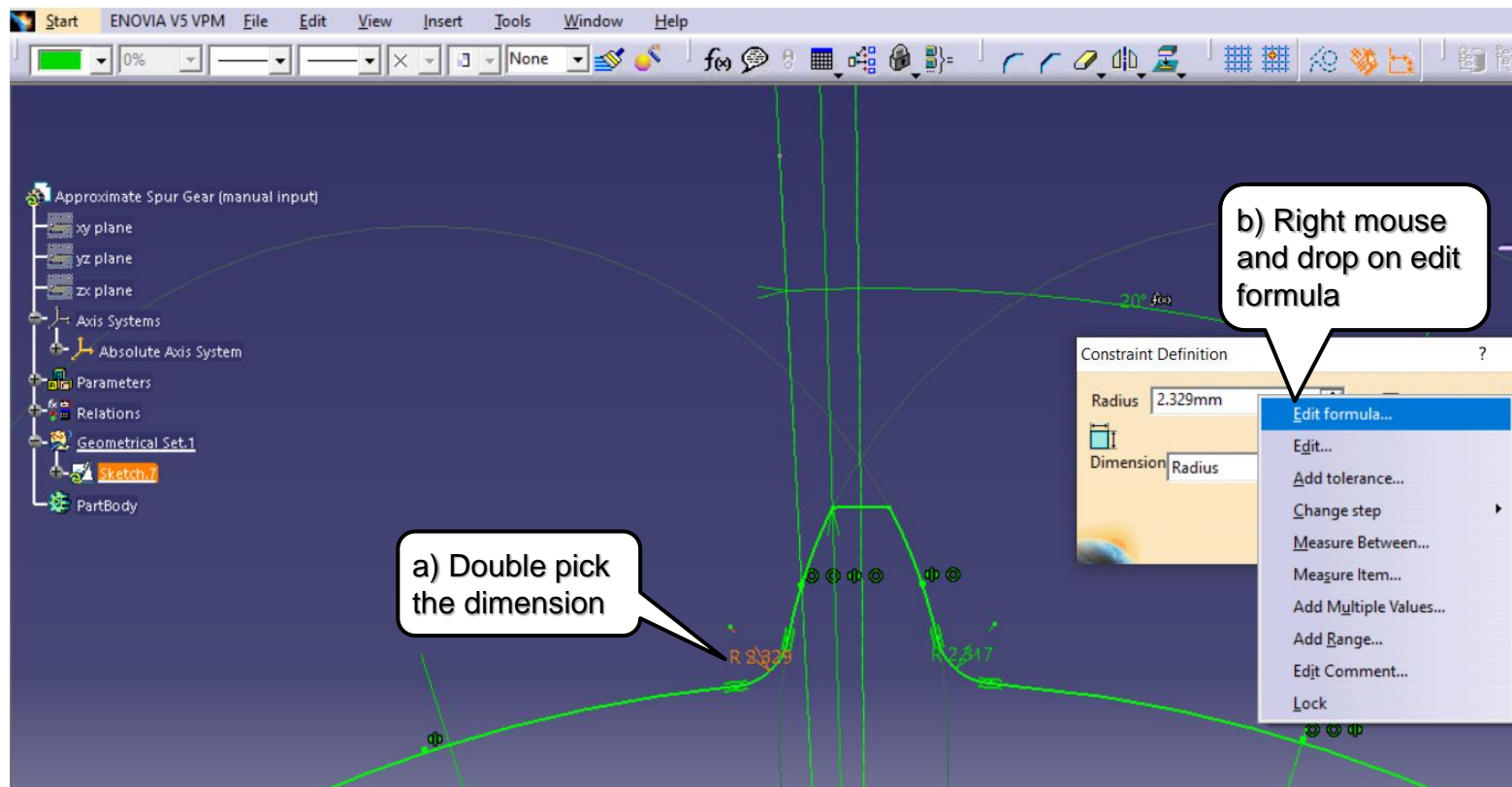


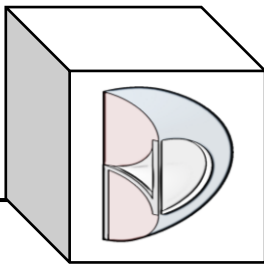


BND TechSource

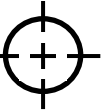


- Apply tooth radius at dedendum circle: tr to both radii.





BND TechSource



- Apply tooth radius at dedendum circle: tr to both radii.

Formula Editor: 'Geometrical Set.1\Sketch.7\Radius.80\Radius'

Geometrical Set.1\Sketch.7\Radius.80\Radius

'tooth radius at dedendum circle: tr'

Dictionary	Members of Parameters	Members of Length
Parameters	All	'Module: m'
Design Table	Renamed parameters	'Pitch diameter: Pd'
Operators	Boolean	'Base diameter: Bd'
Pointer on value function	Length	'Addendum diameter: Ad'
Point Constructors	CstAttr_Mode	'Dedendum diameter: Dd'
Law	Angle	'tooth radius at dedendum circle: tr'
Operations Constructors	Real	
	String	

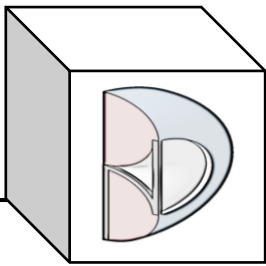
tooth radius at dedendum circle: tr

1.14mm

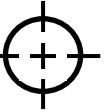
OK Cancel

a) Double pick the formula tooth radius at dedendum circle: tr

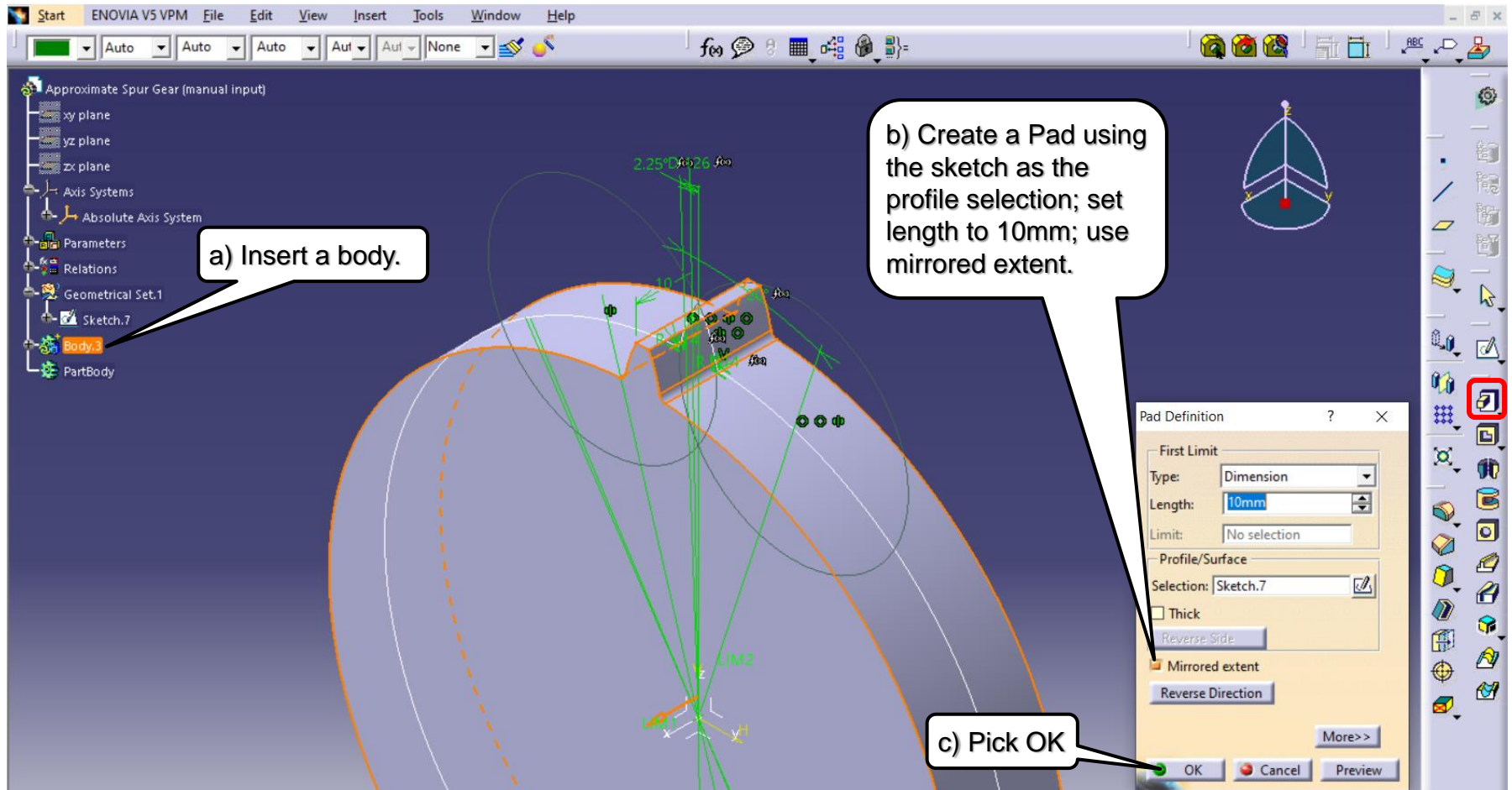
b) Pick OK

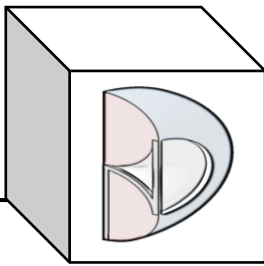


BND TechSource

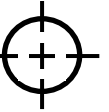


- Create a solid pad using the sketch.

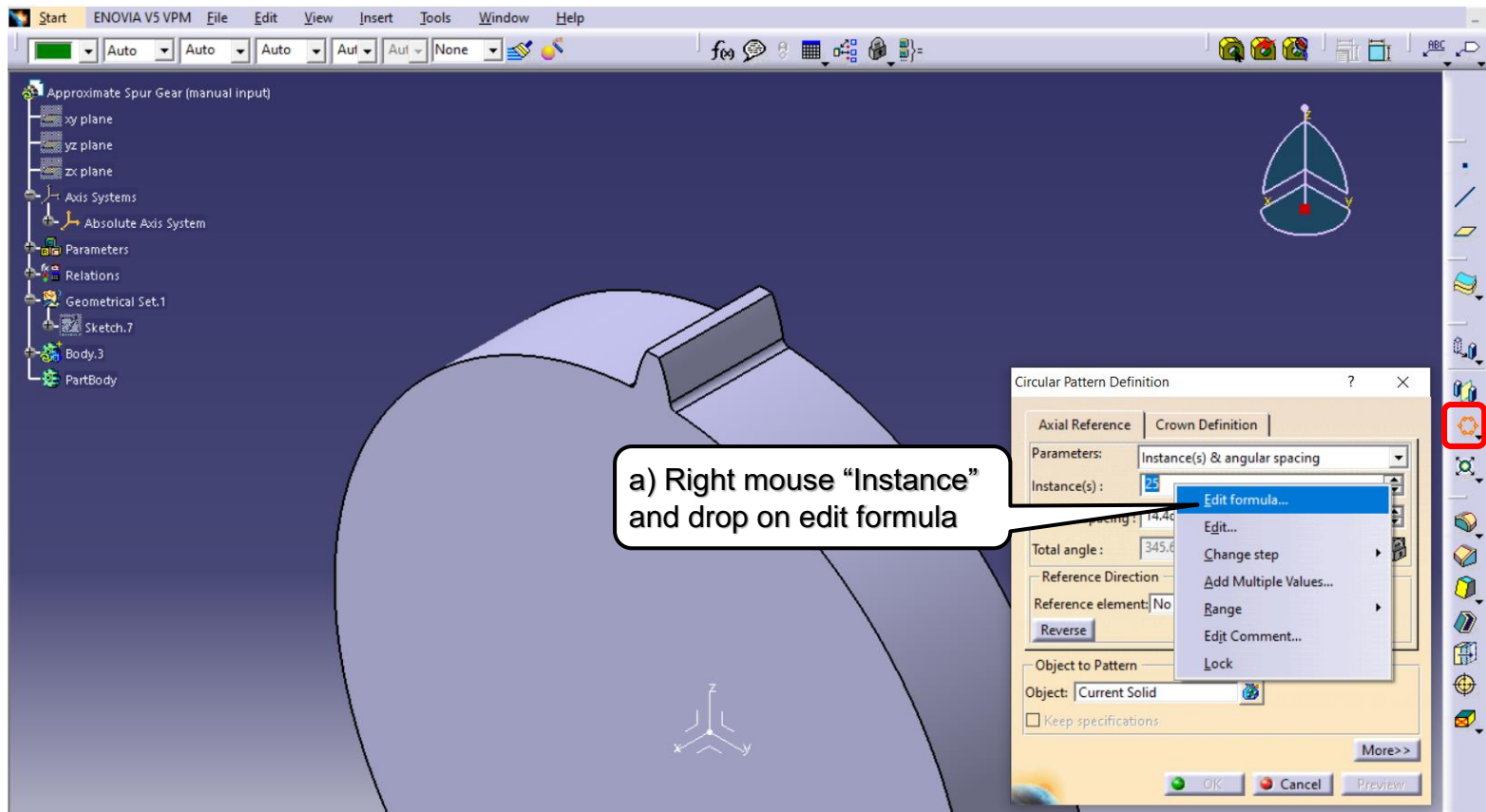




BND TechSource

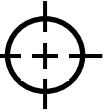


- Create the pattern for the number of teeth.

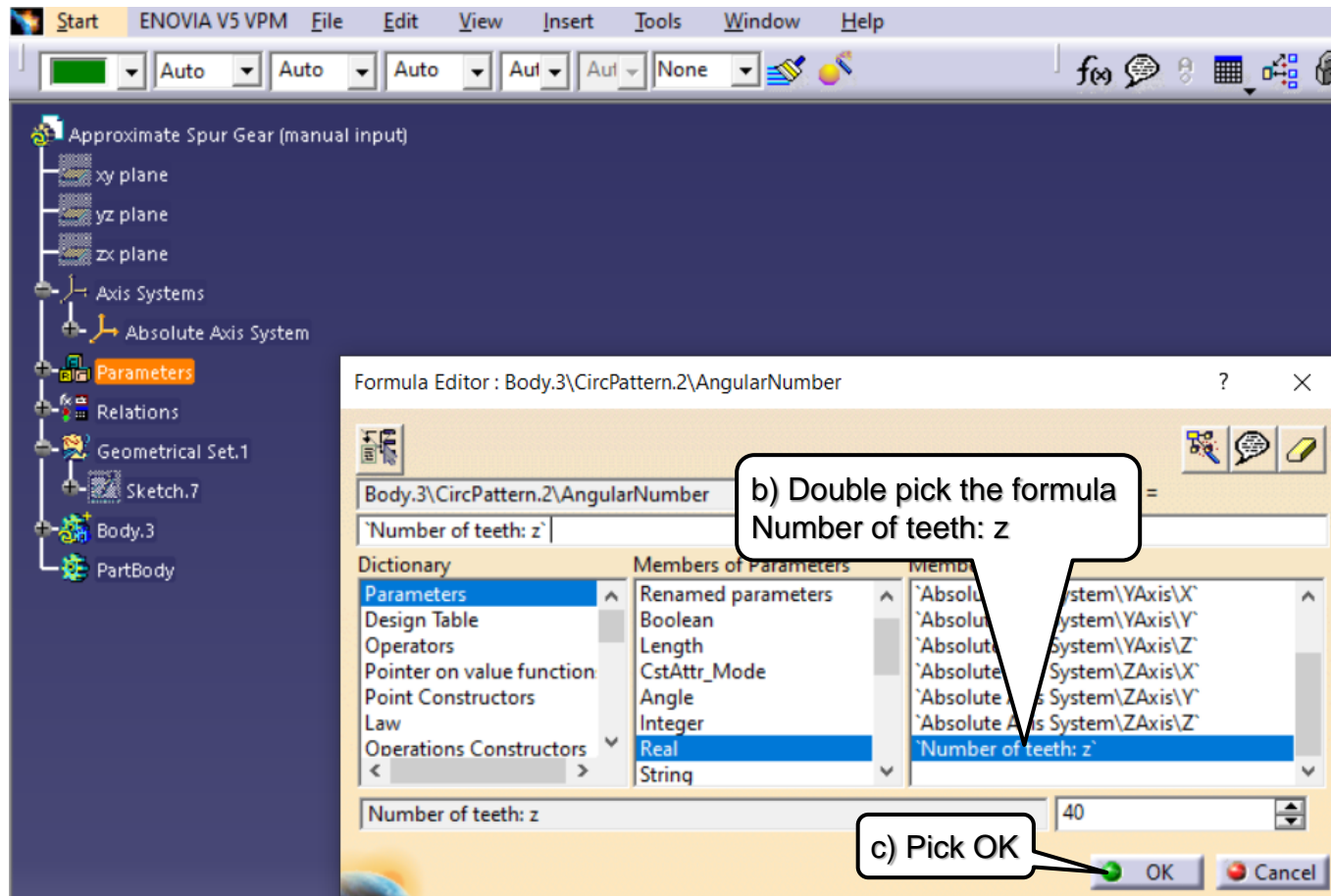


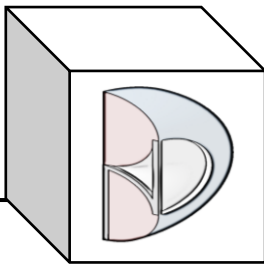


BND TechSource



- Create the pattern for the number of teeth.

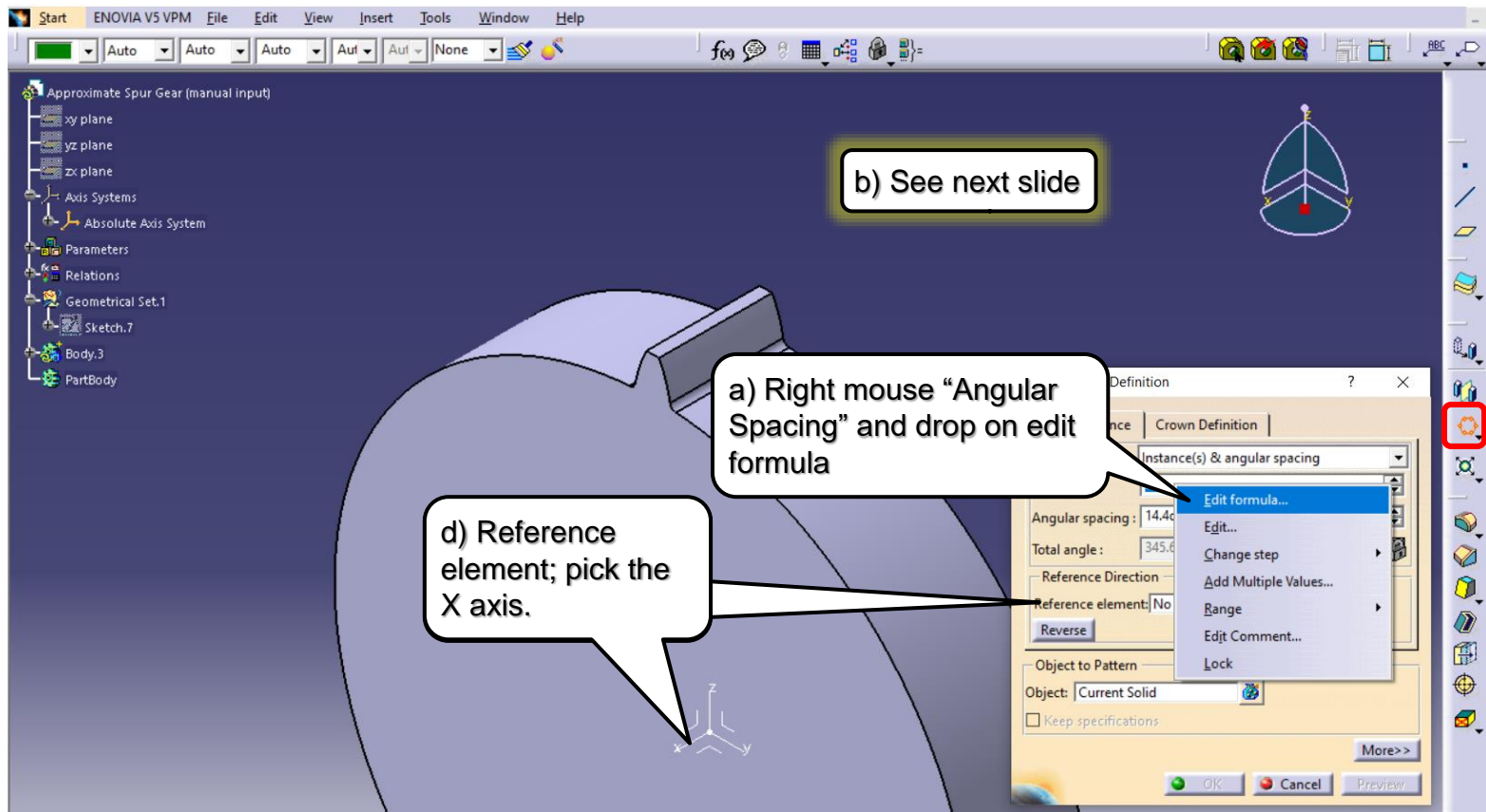


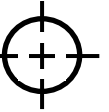


BND TechSource

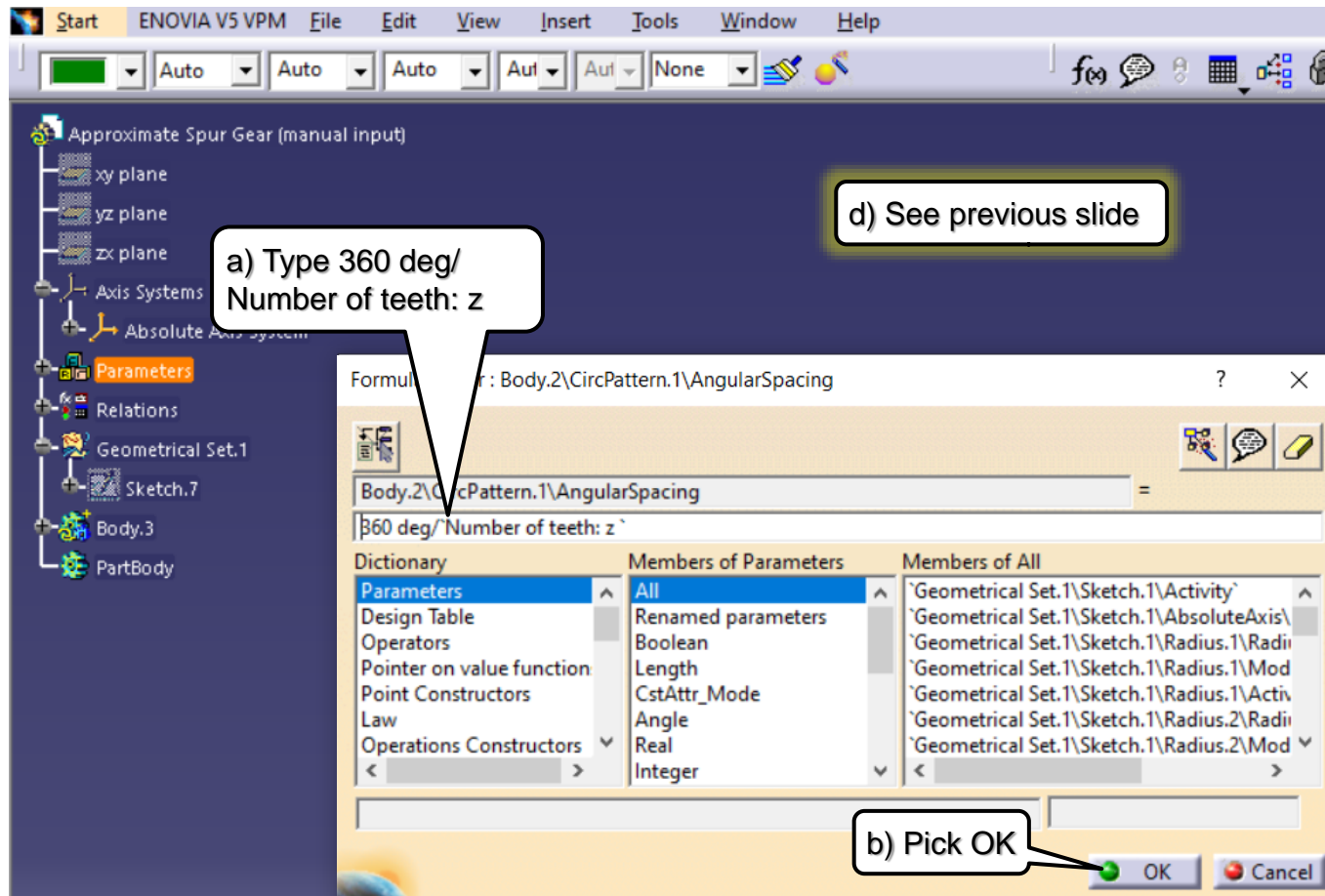


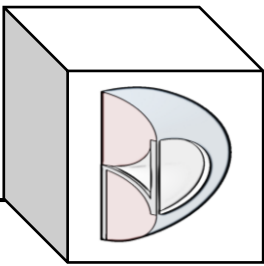
- Create the pattern for the number of teeth.





- Create the pattern for the number of teeth.

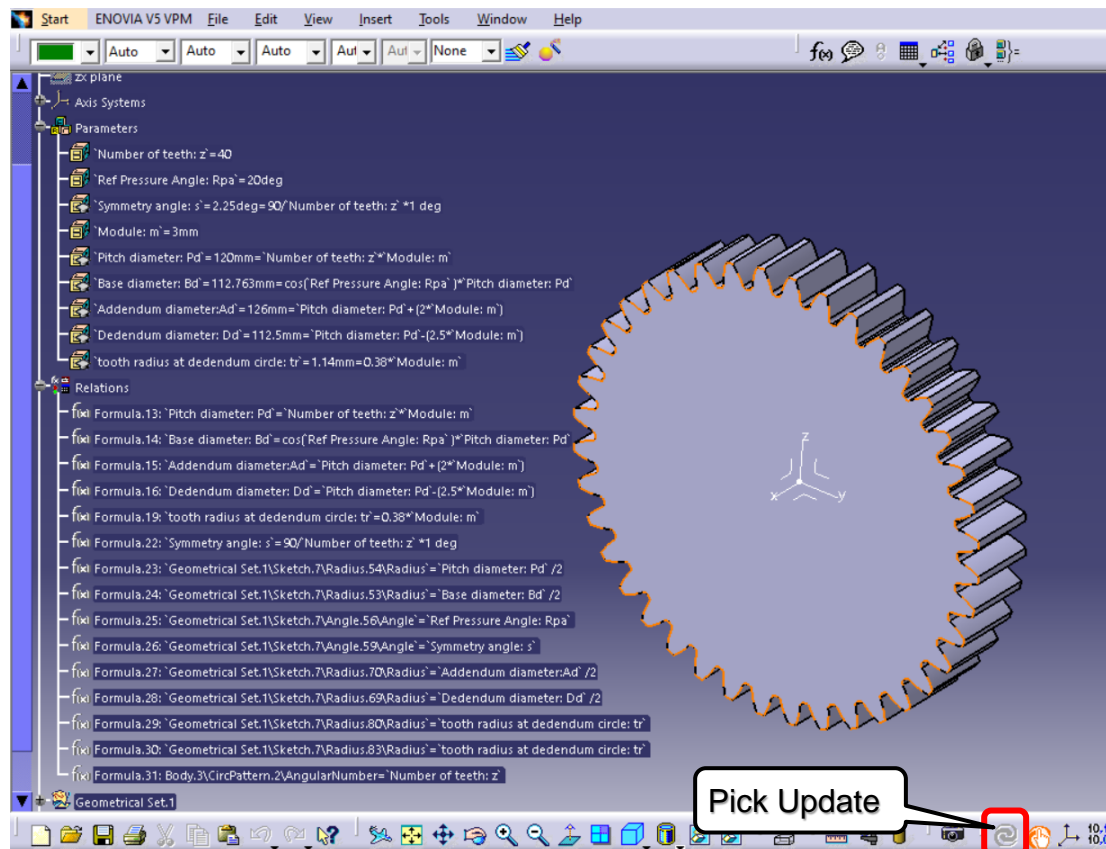


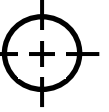
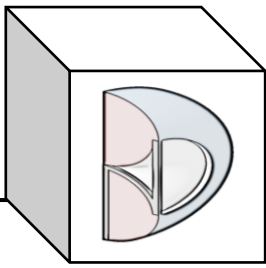


BND TechSource

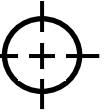
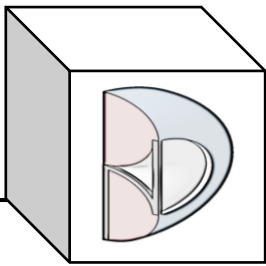


- Update the part.





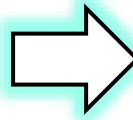
**Modify the .xls(x) or .txt file
and re-import the data to
the CATPart**



- Change the .xls(x) or txt file and re-import it.

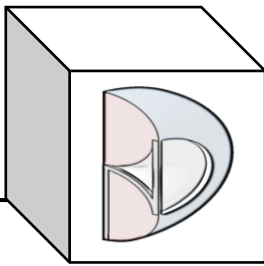
Approximate Spur Gear Input_[m_3-Rpa_20-z_40].txt - Notepad

File	Edit	Format	View	Help
Module: m	3mm			
Ref Pressure Angle: Rpa	20.deg			
Number of teeth: z	40			
Symmetry Angle: s	2.25deg			
Pitch diameter: Pd	120.mm			
Base diameter: Bd	112.763mm			
Addendum diameter: Ad	126.mm			
Dedendum diameter: Dd	112.5mm			
tooth radius at dedendum circle: tr	1.14mm			

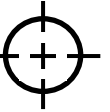


Approximate Spur Gear Input_[m_3-Rpa_20-z_25].txt - Notepad

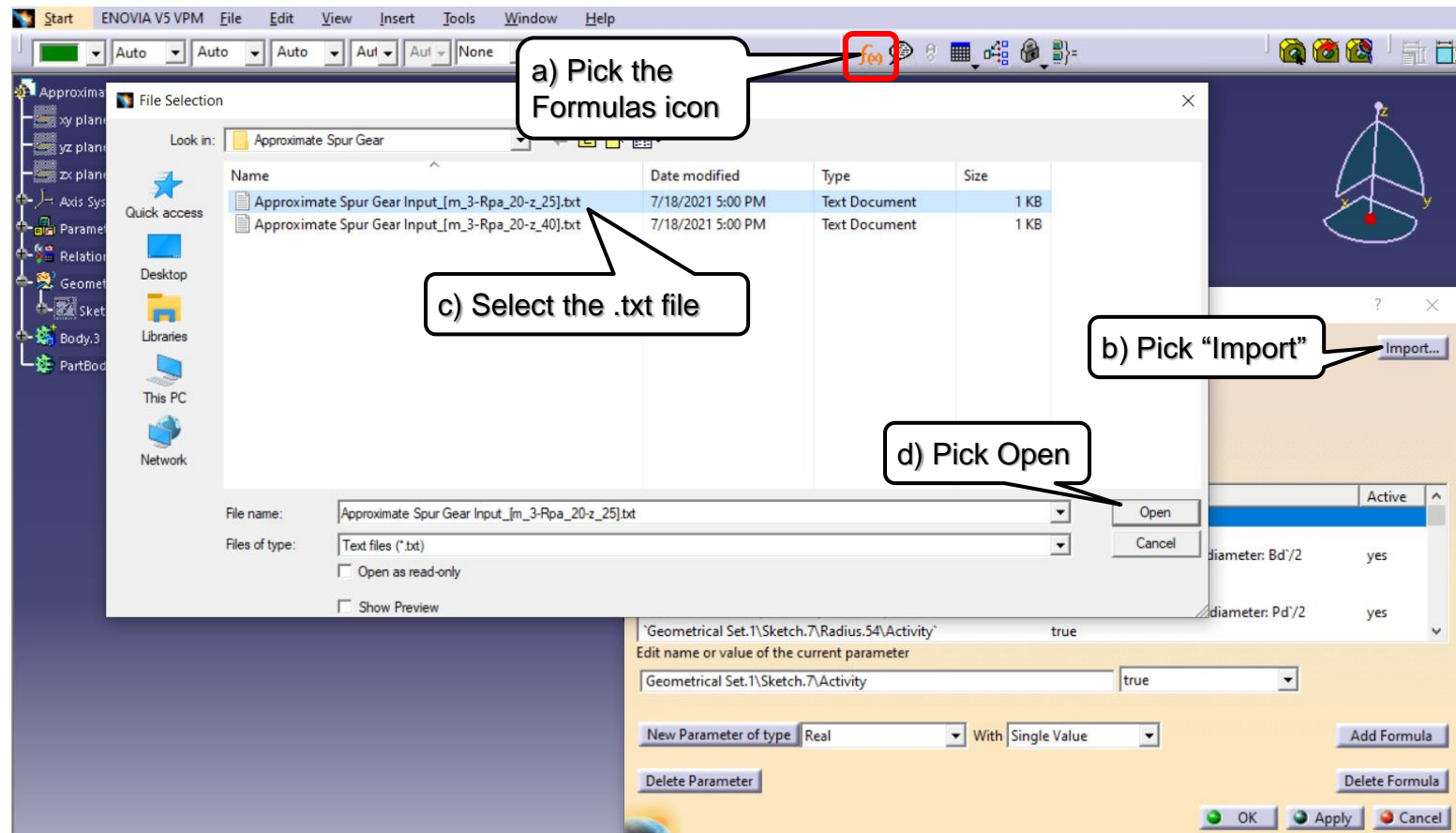
File	Edit	Format	View	Help
Module: m	3mm			
Ref Pressure Angle: Rpa	20.deg			
Number of teeth: z	25			
Symmetry Angle: s	3.6deg			
Pitch diameter: Pd	75.mm			
Base diameter: Bd	70.477mm			
Addendum diameter: Ad	81.mm			
Dedendum diameter: Dd	67.5mm			
tooth radius at dedendum circle: tr	1.14mm			

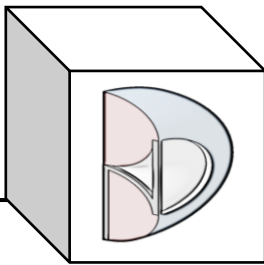


BND TechSource

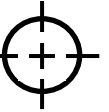


- Re-import the .xls(x) or .txt file to the CATPart.





BND TechSource



- Re-import the .xls(x) or .txt file to the CATPart.

a) Notice all of the parameters have been replaced because they had values assigned.

b) Pick OK

c) Pick OK

Import Result

Already existing parameters

- The parameter Length.6 was already existing. Its new value is going to be 3mm
- The parameter Angle.1 was already existing. Its new value is going to be 20deg
- The parameter Real.1 was already existing. Its new value is going to be 25
- The parameter Symmetry Angle: s was already existing. Its new value is going to be 3.6deg
- The parameter Length.7 was already existing. Its new value is going to be 75mm
- The parameter Length.8 was already existing. Its new value is going to be 70.477mm
- The parameter Addendum diameter: Ad was already existing. Its new value is going to be 67.5mm
- The parameter Length.10 was already existing. Its new value is going to be 67.5mm

Approximate Spur Gear (import data)

Filter On Approximate Spur Gear (import data)

Filter Name:

Filter Type: All

Double click on a parameter to edit it

Parameter	Value	Formula	Active
'Geometrical Set.1\Sketch.7\Activity'	true		
'Geometrical Set.1\Sketch.7\AbsoluteAxis\Activity'	true		
'Geometrical Set.1\Sketch.7\Radius.53\Radius'	56.382mm	= 'Base diameter: Bd'/2	yes
'Geometrical Set.1\Sketch.7\Radius.53\Activity'	true		
'Geometrical Set.1\Sketch.7\Radius.53\Mode'	Constrained		
'Geometrical Set.1\Sketch.7\Radius.54\Radius'	60mm	= 'Pitch diameter: Pd'/2	yes
'Geometrical Set.1\Sketch.7\Radius.54\Activity'	true		

Edit name or value of the current parameter

Geometrical Set.1\Sketch.7\Activity true

New Parameter of type Real With Single Value

Delete Parameter

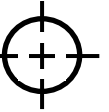
Add Formula

Delete Formula

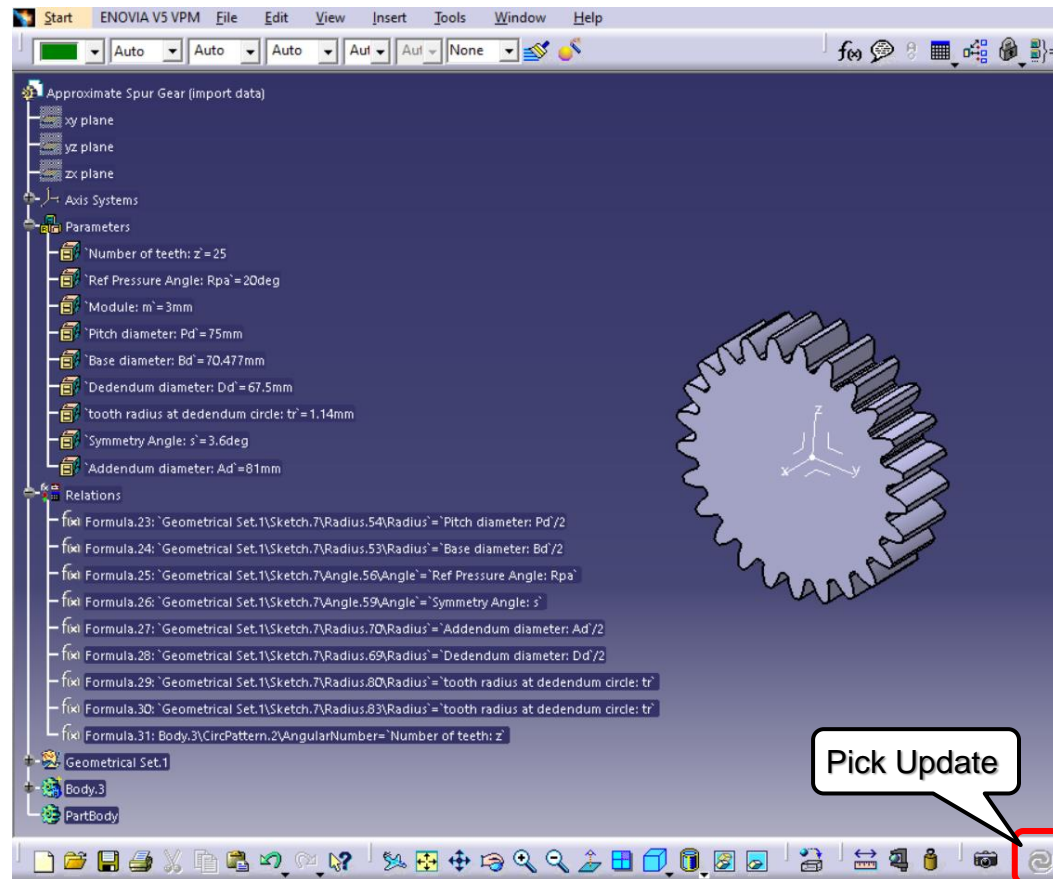
OK Apply Cancel

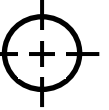
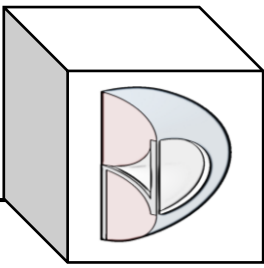


BND TechSource

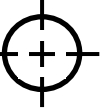
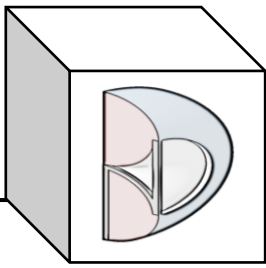


- And there you have it! An Approximated Spur Gear which is modifiable through imported data from .xls(x) or .txt file.





- Again we have a “template” part for our Spur gear.
- The difference is; this template is based upon a one time feed of data via an .xls(x) or .txt file and must be re-imported for every modification.
- This part may be modified by simply changing the parameters of any/all of the following three formulae on the .xls(x) or .txt file:
 1. z - number of teeth // real parameter [z = input]
 2. Rpa - Ref Pressure Angle // angle parameter [Rpa = input]
 3. m - module // length parameter [m = input]
- Next we will look at using CATIA Macro + Import Parameters (from .xls(x) or .txt file) to feed the parameter data and update the Spur Gear.



- Conclusion:

This is an example of Designing Approximate Spur Gear in CATIA V5 (Method 3: importing data from .xls(x) or .txt file).

We hope this will help those who need this type of simulation.

As always, we are open to any discussions this may bring.

Please ***subscribe*** to our YouTube channel!

