DIMENSION DEMO GUIDED SOLUTION

To demonstrate basic dimensioning , complete the 8 settings, pull out the 6 frequently used toolbars, open exercise 1B- 250mmx 250mm template

Launch AutoCAD 2020 and do all the 8 settings and insert the 6 frequently used toolbars (See Fig 1) as highlighted in **UNIT 1 & 1A in Blackboard (BB)→Learning Resources→ LAB accordingly:**

1. **Activate Snap, Grid & Object Snap in Status Toolbar**
2. **Set Grid & Snap spacing, Grid Style, Grid Behaviour according to UNIT 1**
3. **Use Default A3 size workspace. Leave it as A3 size paper (420 mm x 210mm) as shown in Fig 1, so no need to set LIMITS.**
4. **Set Text Style= Times New Roman**
5. **Set Dimension Scale = 1.5 (Keyboard shortcut, Type dimscale in AutoCAD command)**
6. **Set Dimension Style accordingly to UNIT 1**
7. **Set Layers: Text, Dimension, Solid, Center and Hidden according to UNIT 1**
8. **Set Linetype Scale (Keyboard shortcut =lts) = 0.5**

Insert all the **6 frequently used toolbars** shown in **UNIT 1A**:

1. **Draw**
2. **Modify**
3. **Draw Order**
4. **Dimension**
5. **Layers**
6. **Properties**

Next **open** the file **EXERCISE 1B** shown Fig 1:

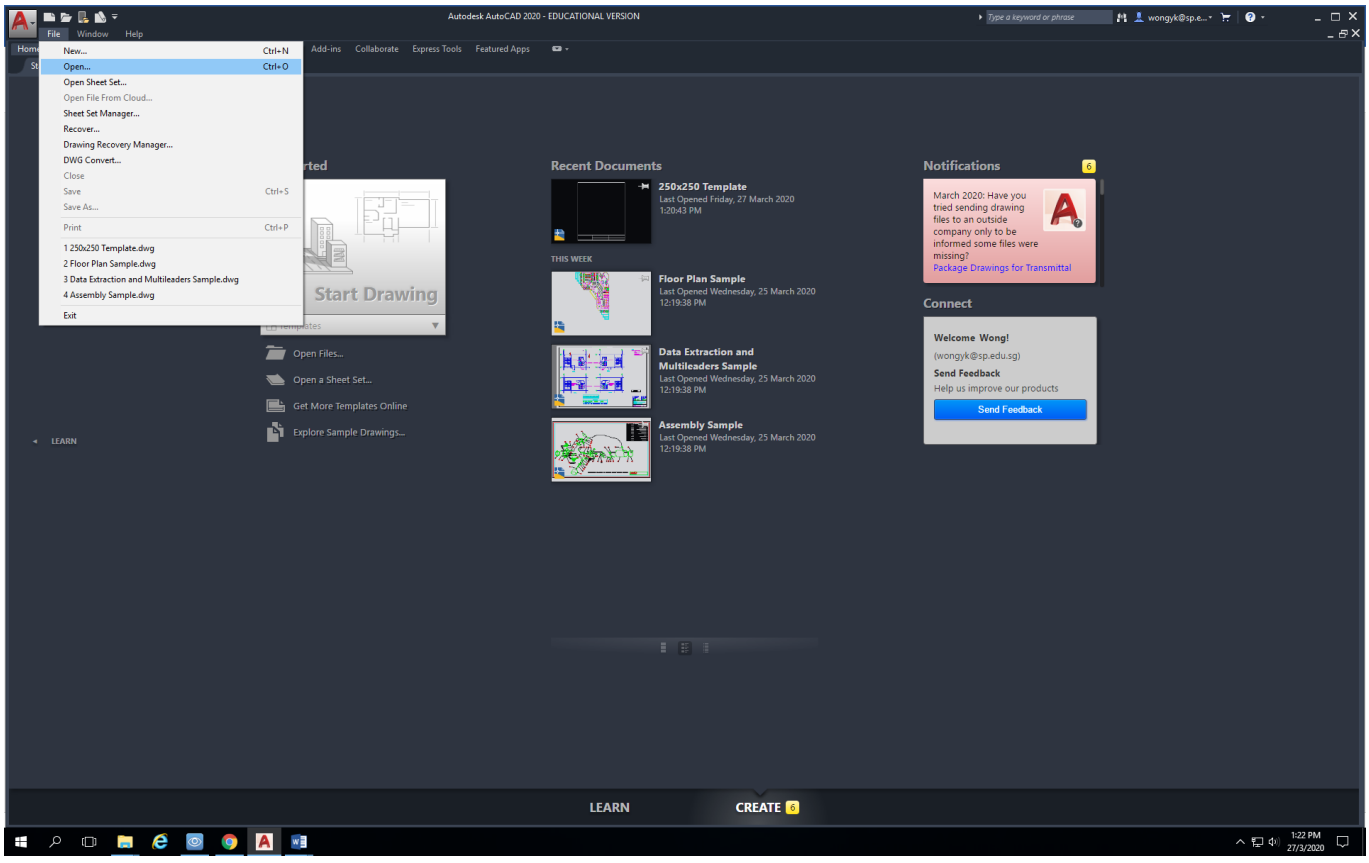

FIG 1

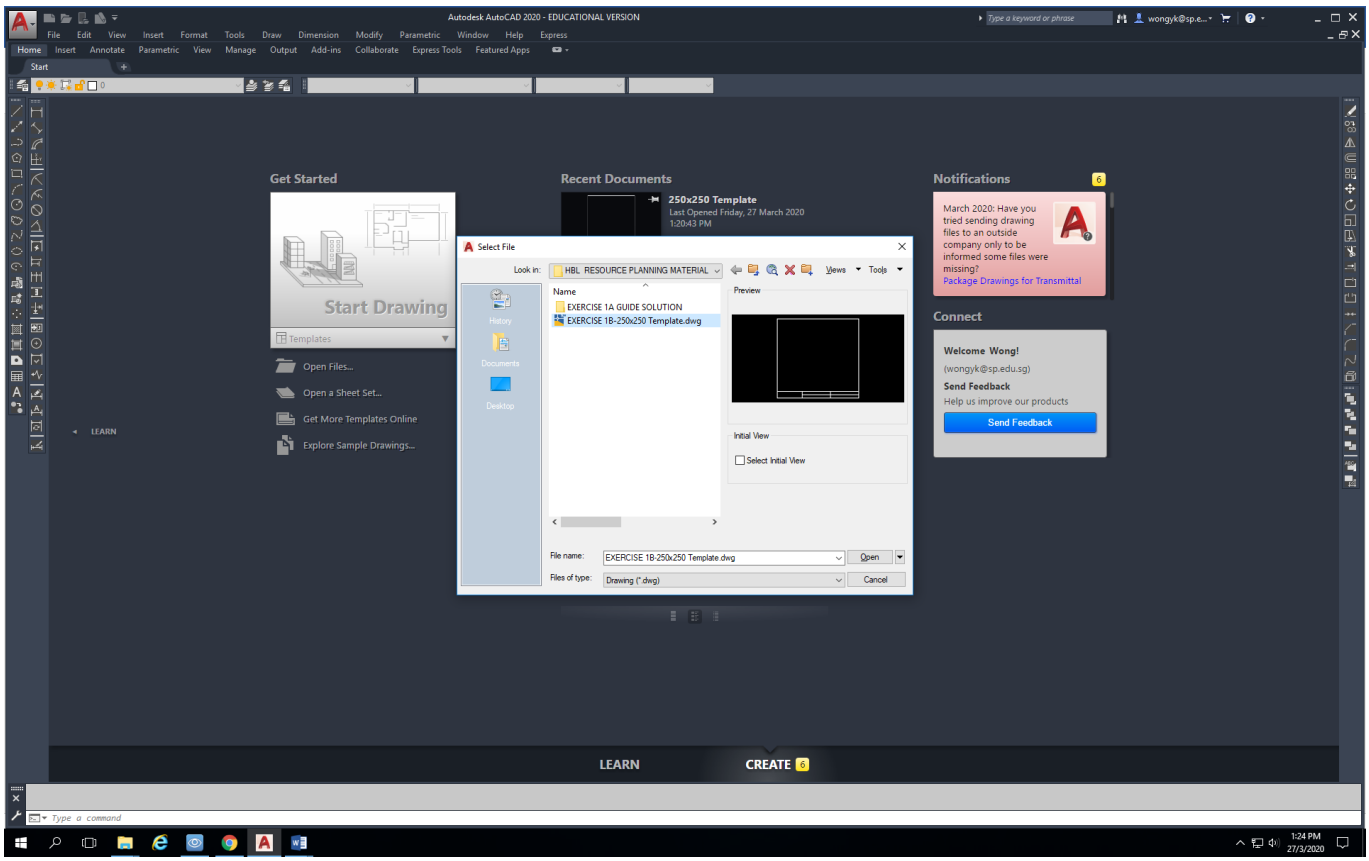

FIG 2

1. A dialog box appears, click the file: **EXERCISE 1B**, and then click **open**
2. See Fig 2 for the steps shown

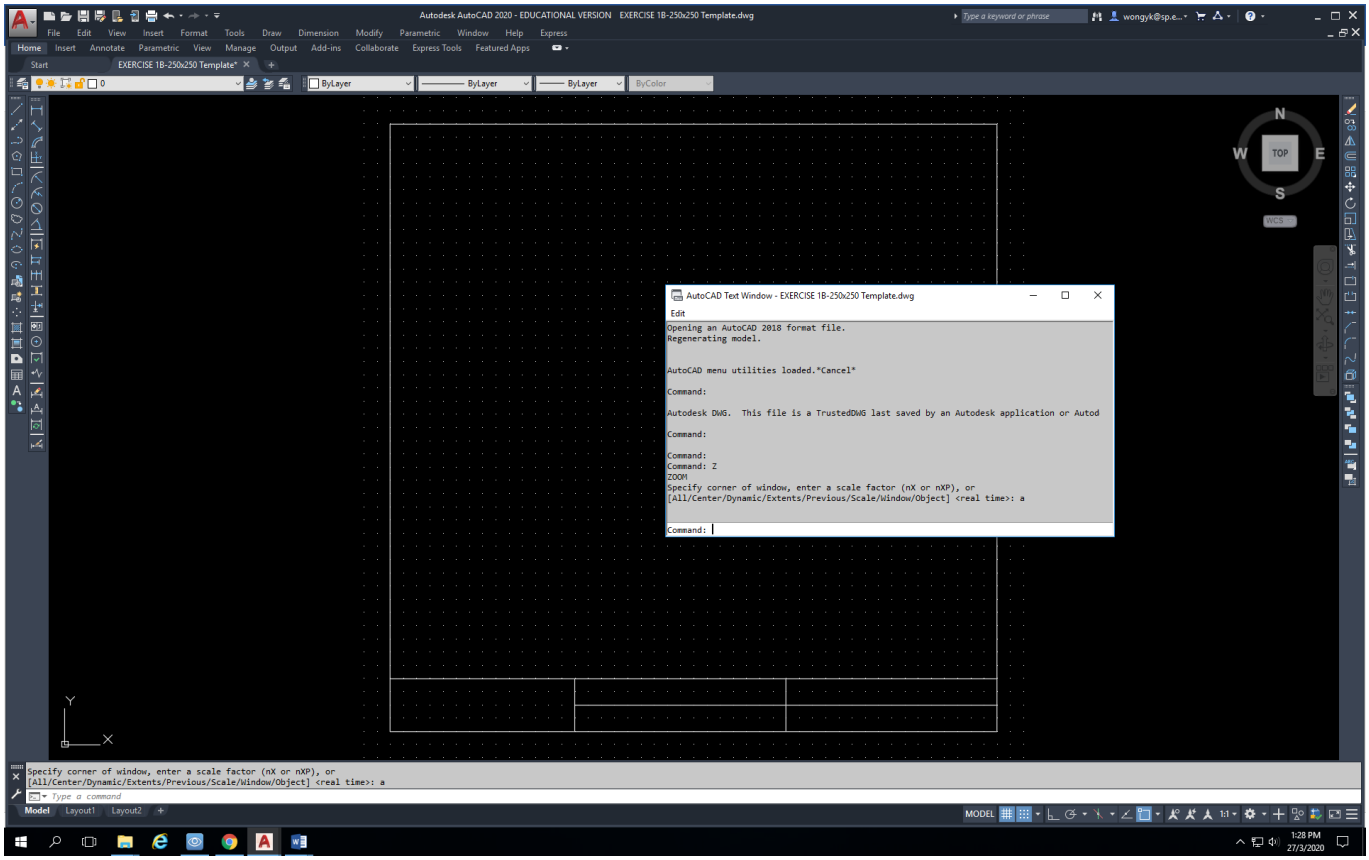

FIG 3

1. The file: **EXERCISE 1B** appears with the 250mm x 250mm Template drawing as done in Week 1
2. Next in command bar, Type **Zoom**, click=**All**, and then **enter**
3. The drawing will be positioned centre of the workspace
4. See Fig 3 for the steps shown.

REMINDER:

All 8 settings and 6 frequently toolbar including the template must be completed before attempting to do dimensioning of the object.

Upon completion of this dimension practice, complete the dimensioning in Exercise 1A, 2, 3 and 4.

Basic Dimensioning will focus on: Linear, Continue, Baseline, Aligned, Angular, Radius, Diameter, Centre Mark, and Leader

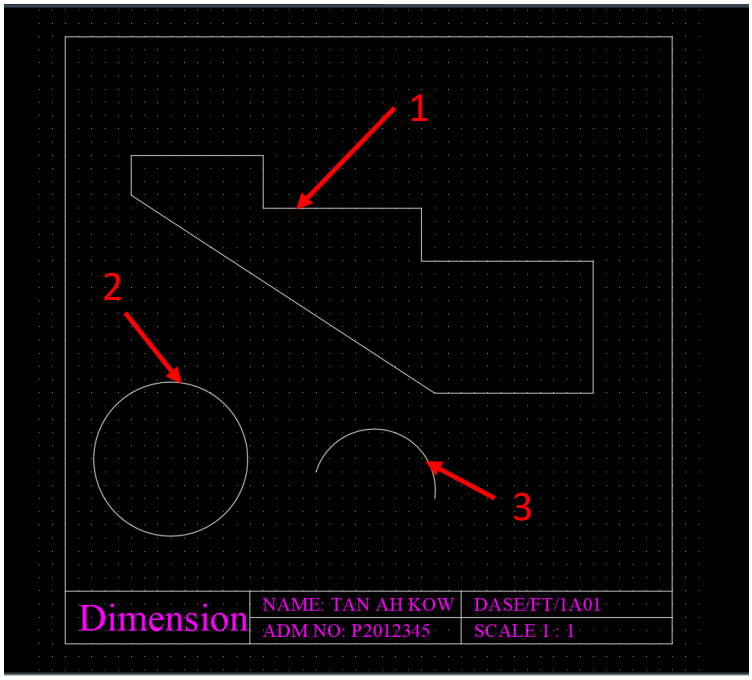

FIG 4

Use free hand to draw a staircase (1), a circle (2) and arc (3). See Fig 4.

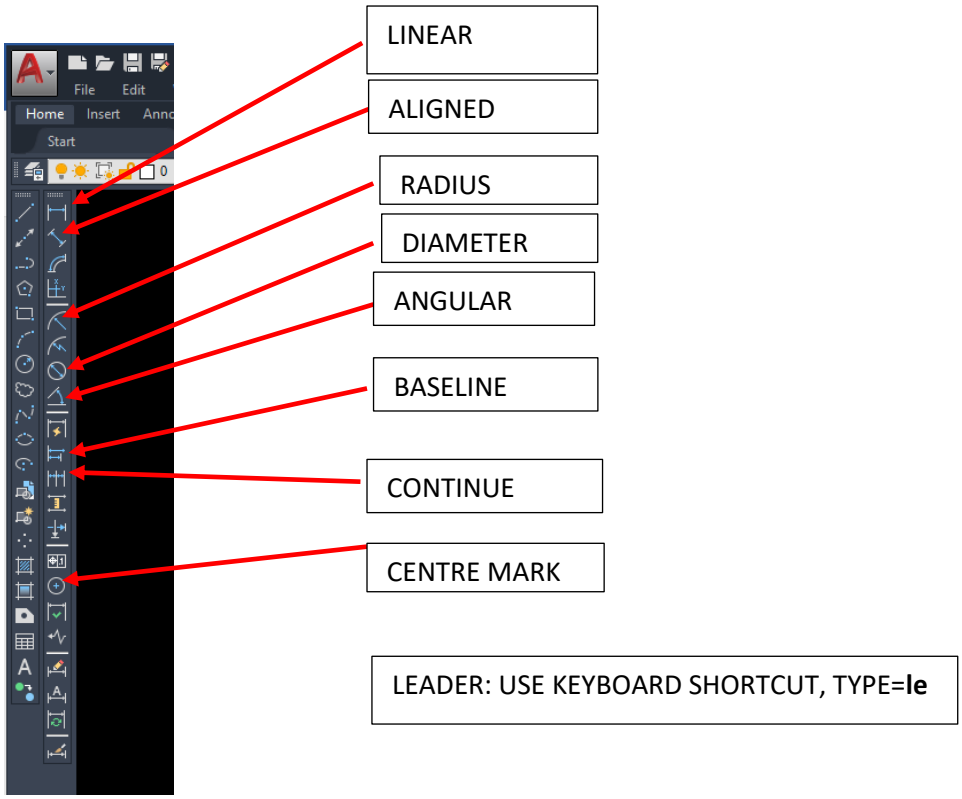

FIG 4

The frequently used Dimension toolbar is shown in Fig 4 and Fig 3 is used to demonstrate the 9 basic dimensioning method shown in Fig 4.

<u>Linear dimension</u>: To dimension horizontal and vertical distance

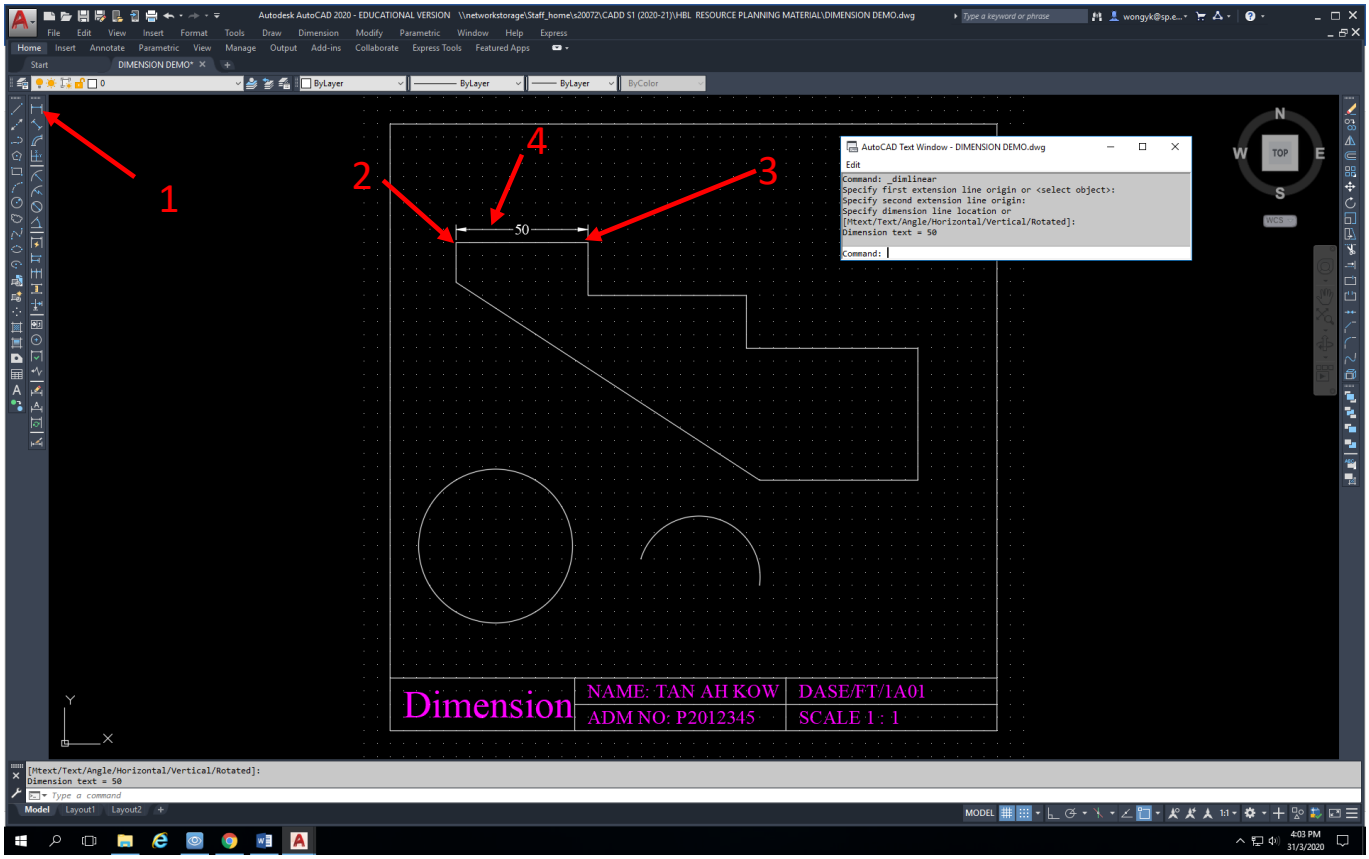

FIG 5

Method:

1. Click Linear icon **(1)**
2. Select First extension line: Click point **(2)**
3. Select Second extension line: Click point **(3)**
4. Dimension line location **(4):** Move cursor above the horizontal line and click the spot.
5. A dimension of 50mm is placed horizontal as shown Fig 5.

Similarly, a Linear vertical dimension **(1)** is shown in Fig 6 using the same method as horizontal dimension

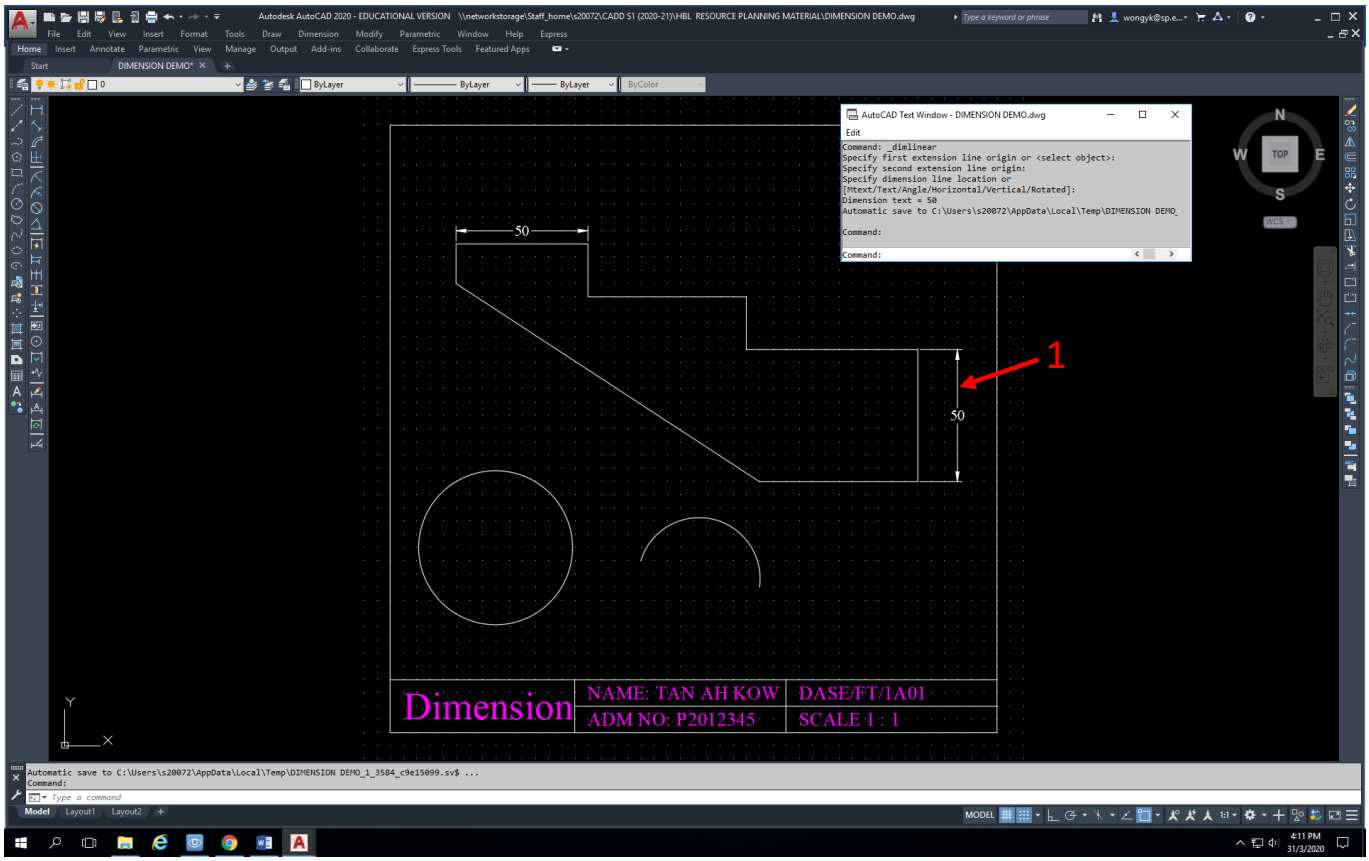

FIG 6

<u>Continue Dimension</u>: To continue adjacent dimensioning as shown in Fig 7.

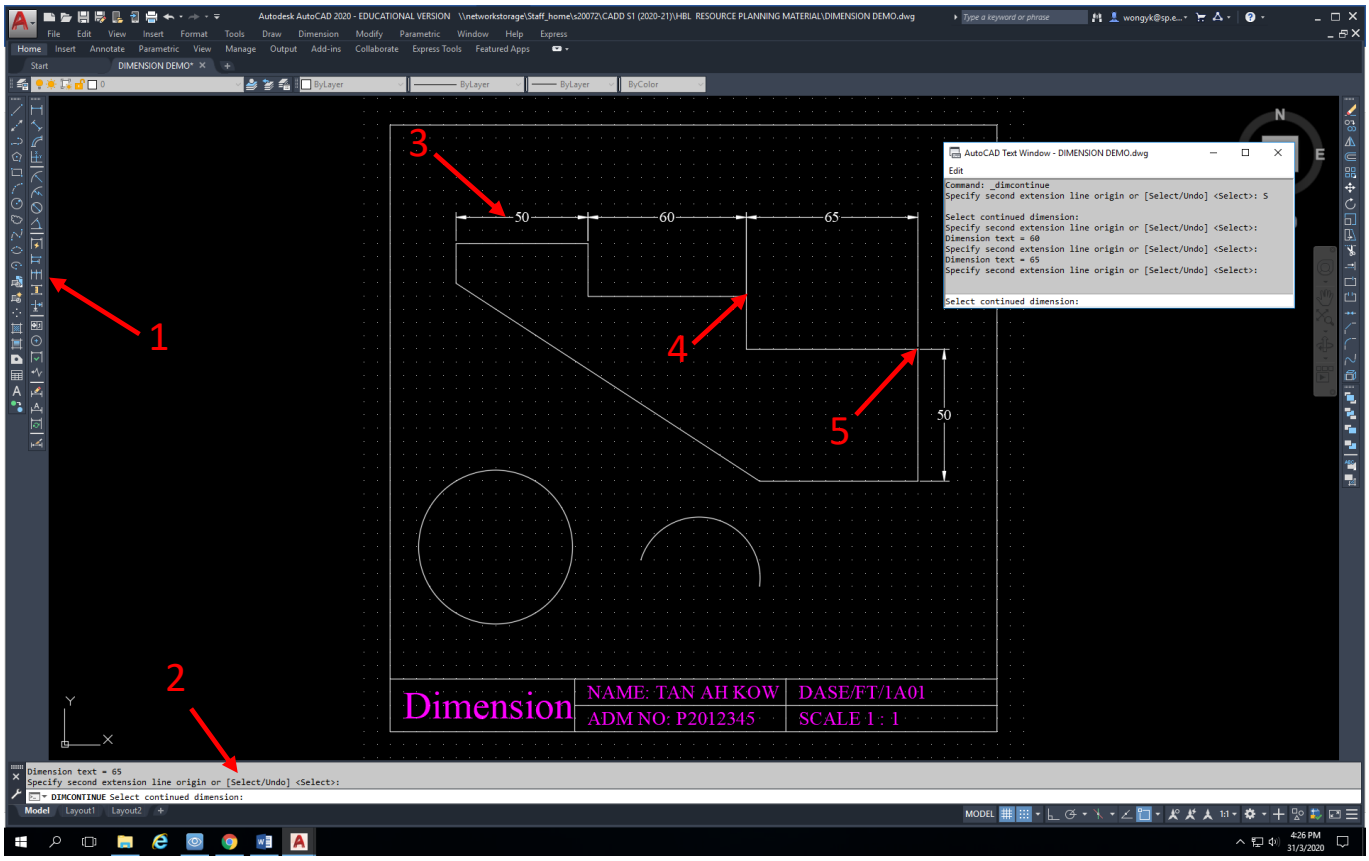

FIG 7

Method:

1. Click Continue dimension icon **(1)**
2. In command bar **(2):** Click **Select**
3. Click horizontal 50mm Linear dimension **(3)**
4. Select Second extension line: Click point **(4)**
5. Select Second extension line: Click point **(5)**
6. Press **enter**
7. Fig 7 shows the completed Continue dimension

<u>Baseline Dimension:</u> a number of dimensions based on a common reference point.

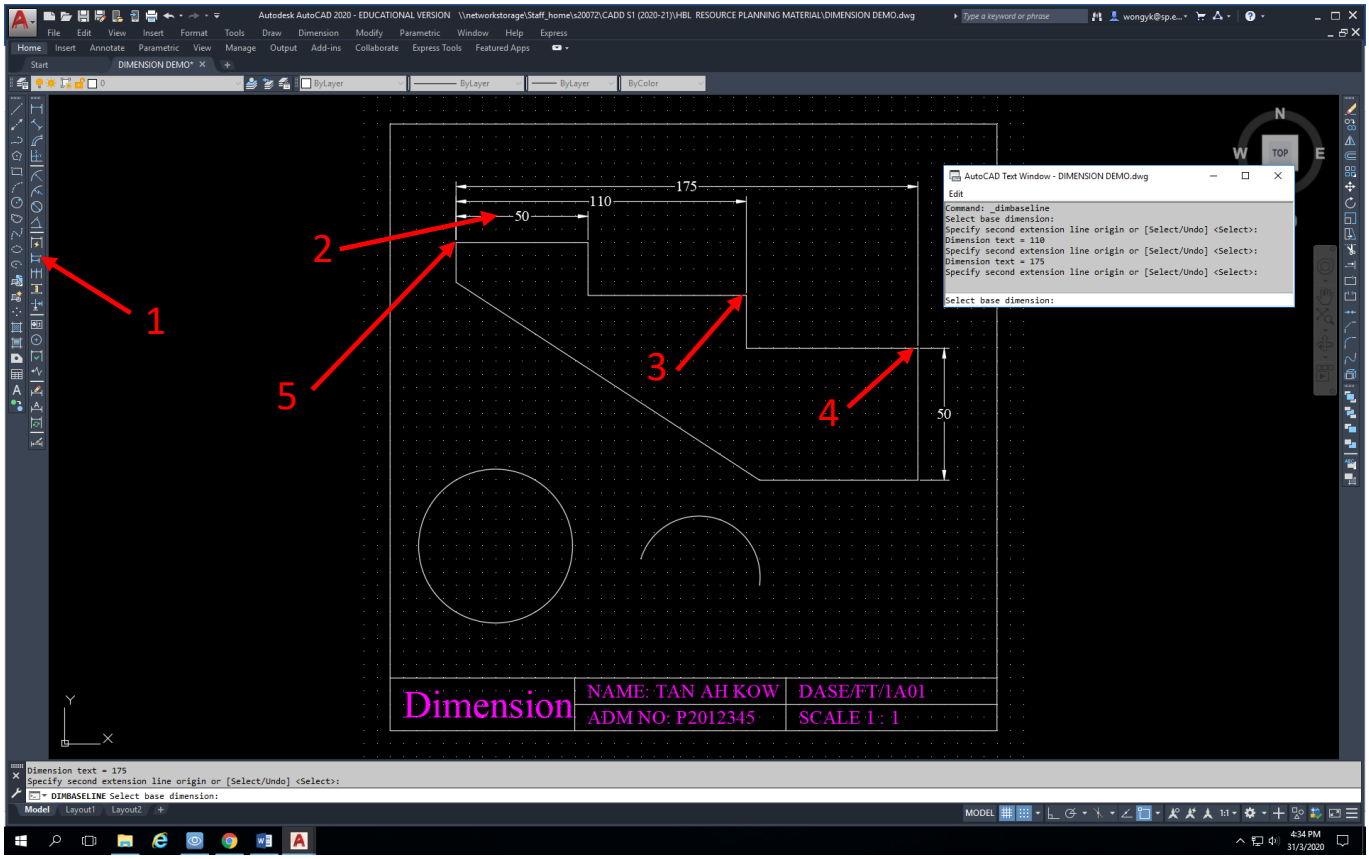

FIG 8

Method:

Erase the 2 Continue Dimensions that previously done and only left with the 50mm Linear dimension.

1. Click Baseline dimension icon **(1)**
2. Select Base Dimension: Click on the 50mmLinear dimension **(2)**
3. Select Second extension line: Click point **(3)**
4. Select Second extension line: Click point **(4)**
5. Press **enter**

Fig 8 shows the completed Baseline dimension from a reference point **(5)**

<u>Aligned Dimension:</u> Dimension parallel to any edges.

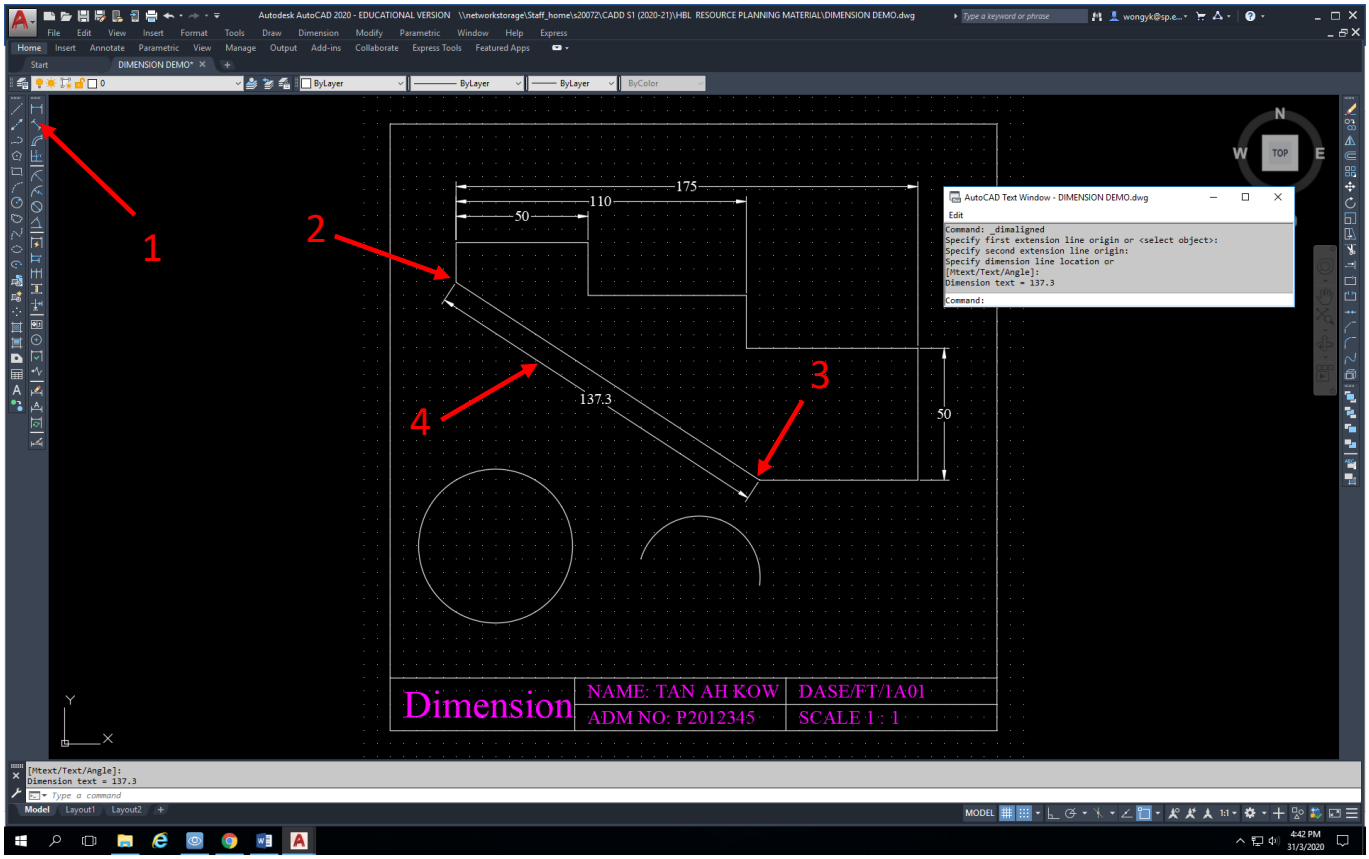

FIG 9

Method:

1. Click Aligned dimension icon **(1)**
2. Select first extension line: Click point **(2)**
3. Select Second extension line: Click point **(3)**
4. Specify line dimension location: move Aligned dimension to location **(4)** and **click at that location**.
5. Fig 9 shows the completed Aligned dimension

<u>Angular Dimension:</u> Dimension angle between lines, circle or arc.

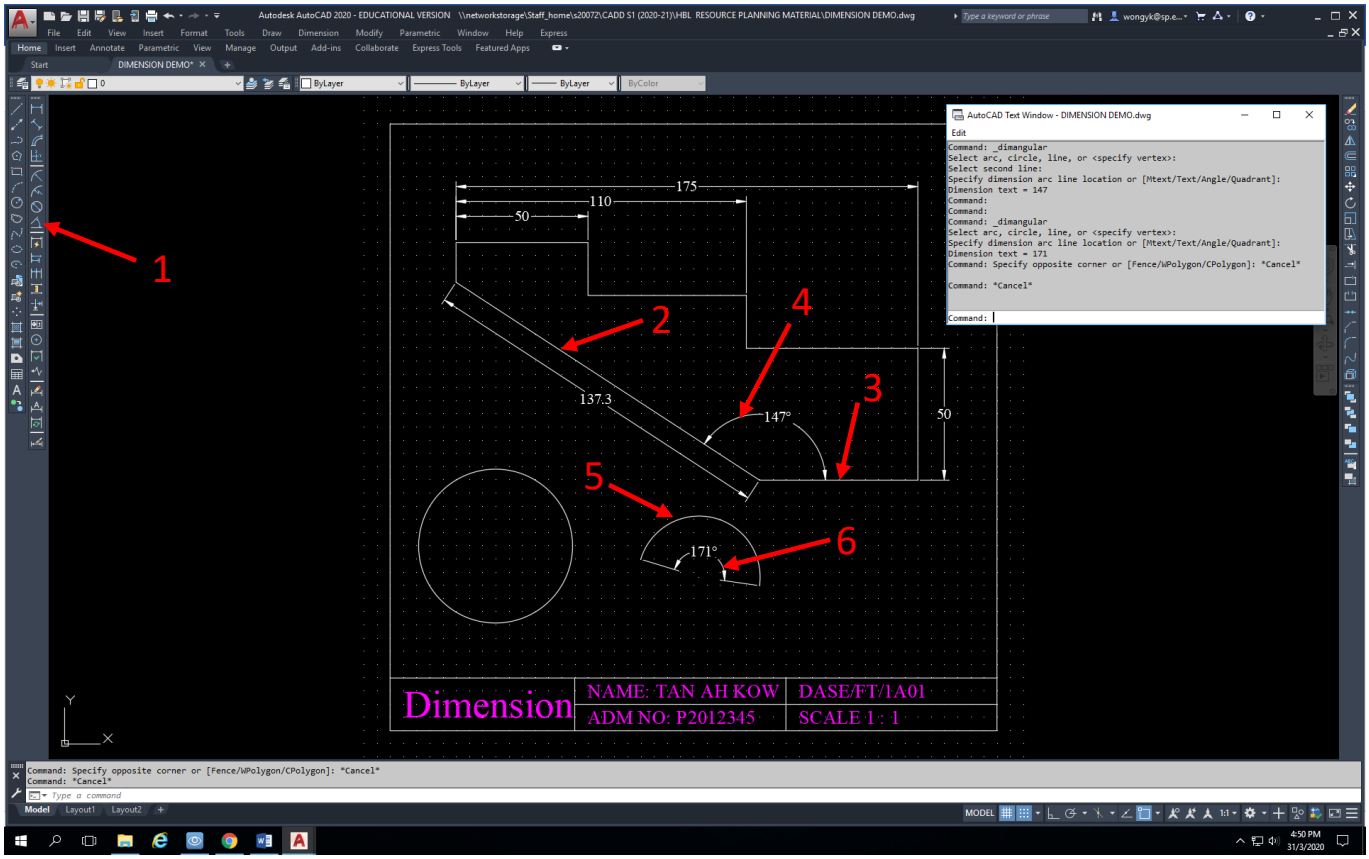

FIG 10

Method:

1. Click Angular dimension icon **(1)** (To dimension angle between 2 lines)
2. Select line: Click on line **(2)**
3. Select Second line: Click on line **(3)**
4. Specify dimension location: move Angular dimension to location **(4)**
5. Click Angular dimension **icon (1)** (To dimension angle subtended by an arc)
6. Select arc: Click on line **(5)**
7. Specify arc dimension location: move Angular dimension to location **(6)**
8. Fig 10 shows the completed Aligned dimension

Radius Dimension: Dimension radius of circle or arc.

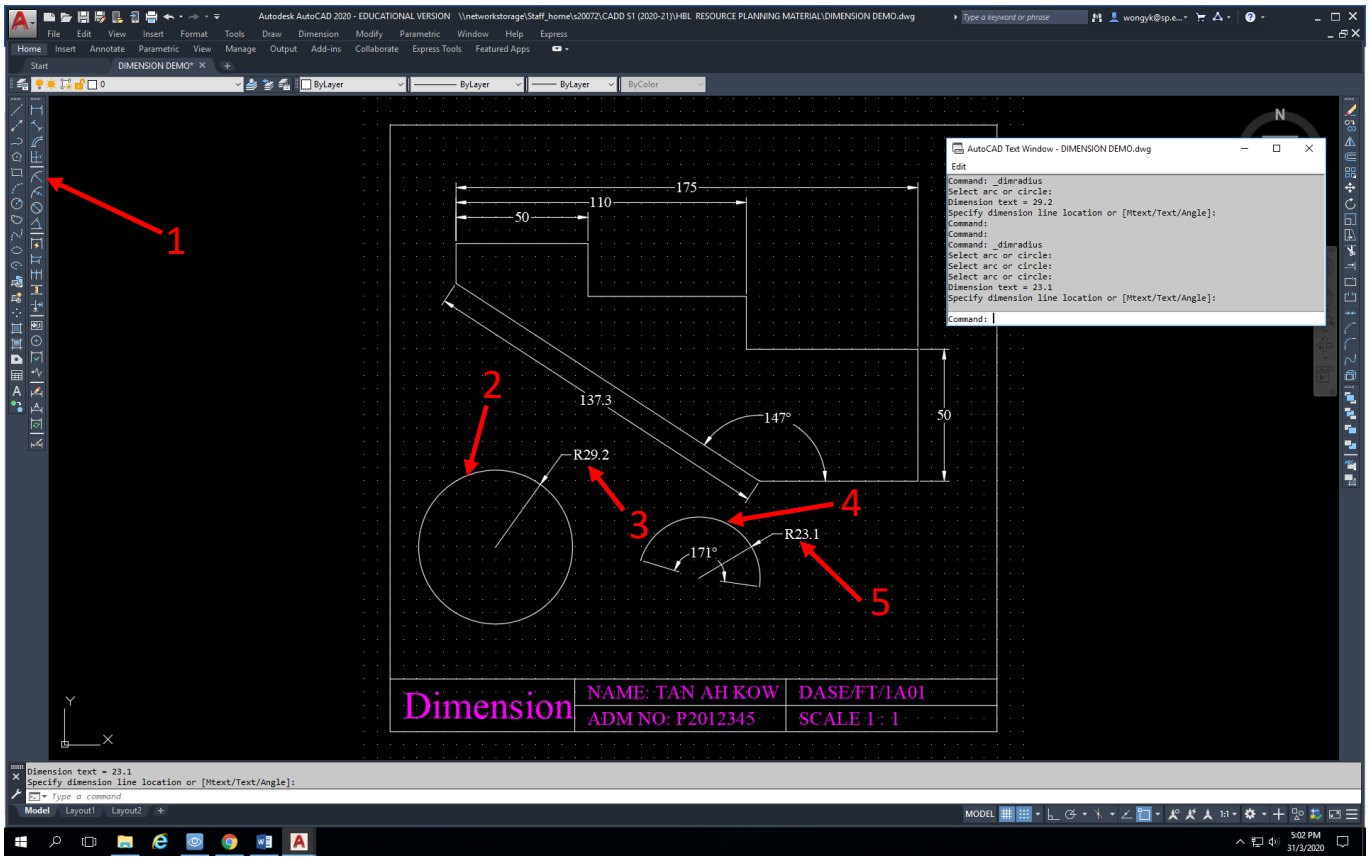

FIG 11

Method:

1. Click Radius dimension icon **(1)** (To dimension circle)
2. Select circle: Click on circle **(2)**
3. Specify dimension location: move Radius dimension to location **(3)** and **click on that spot.**
4. Click Radius dimension icon **(1)** (To dimension arc)
5. Select arc: Click on arc **(4)**
6. Specify dimension location: move Radius dimension to location **(5)** and **click on that spot.**
7. Fig 11 shows the completed Radius dimension

<u>Diameter Dimension</u>: Dimension diameter of circle or arc.

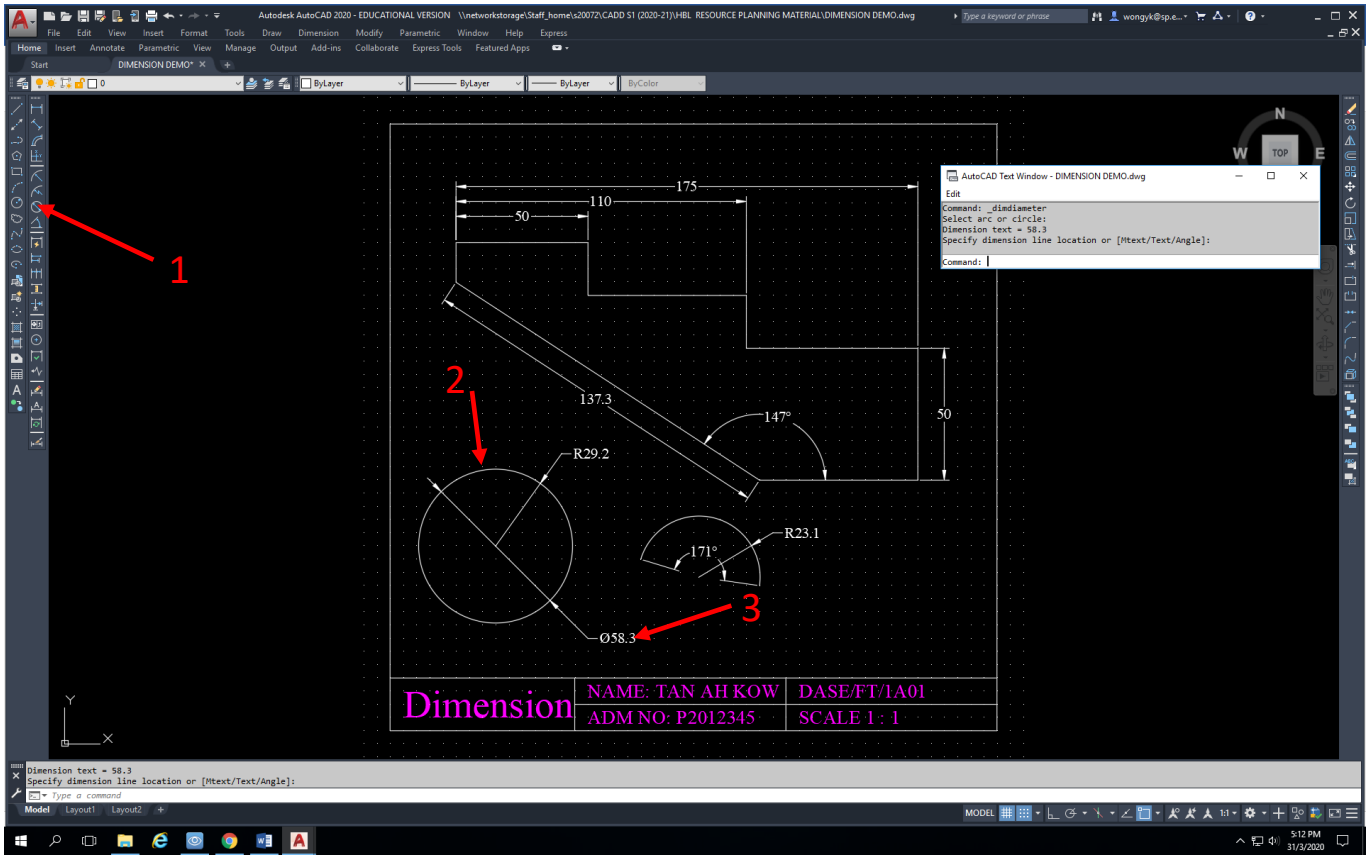

FIG 12

Method:

1. Click diameter dimension icon **(1)** (To dimension circle)
2. Select circle: Click on circle **(2)**
3. Specify dimension location: move Diameter dimension to location **(3)** and **click on that spot.**
4. Fig 12 shows the completed Diameter dimension

<u>Centre Mark Dimension:</u> To mark the centre of a circle or arc.

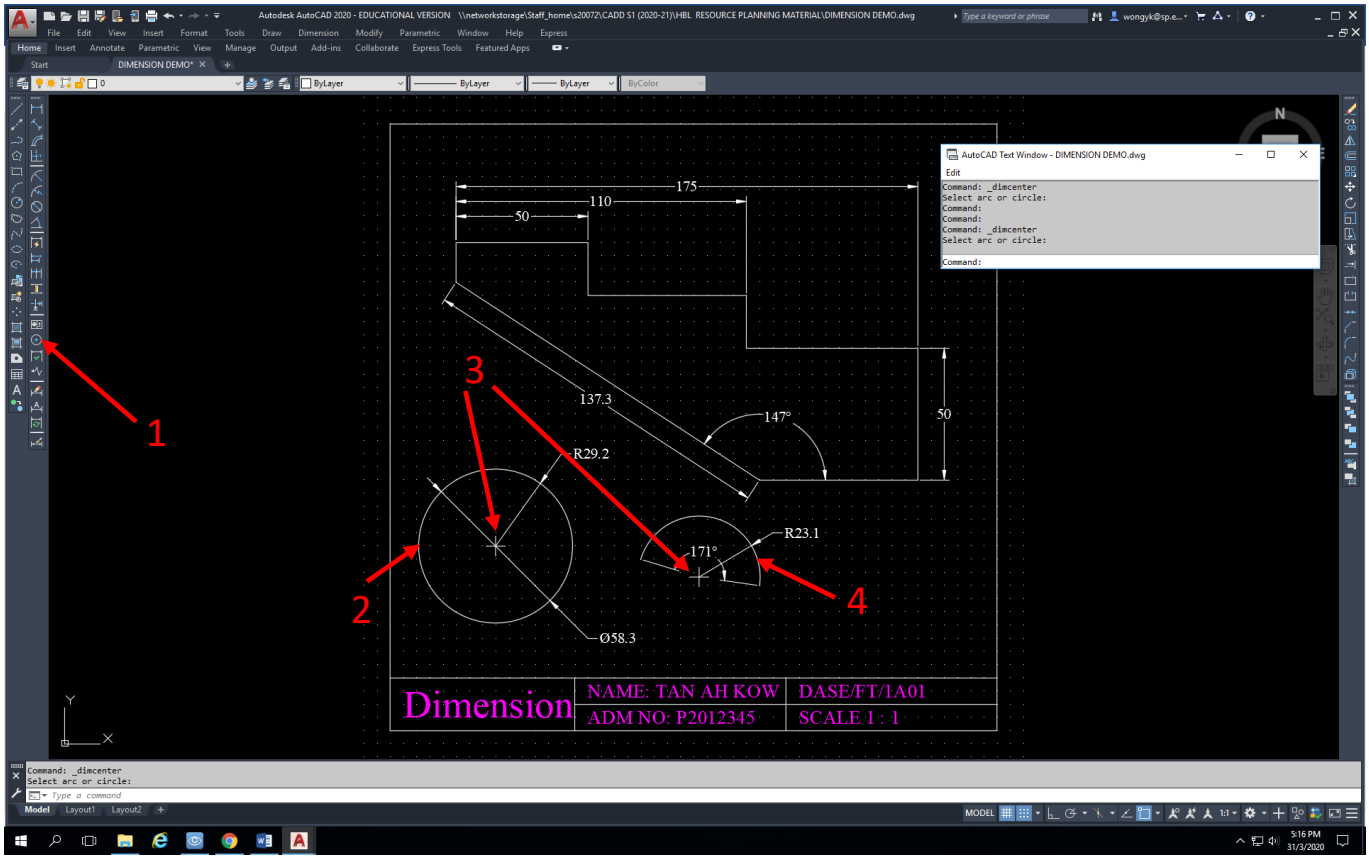

FIG 13

Method:

1. Click Centre Mark dimension icon **(1)** (To dimension circle)
2. Select circle: Click on circle **(2)**
3. A centre mark (**+**) appears at the centre of circle **(3)**
4. Click Radius dimension icon **(1)** (To dimension arc)
5. Select arc: Click on arc **(4)**
6. A centre mark (**+**) appears at the centre of arc **(3)**
7. Fig 13 shows the completed Radius dimension

Leader Dimension: A dimension line complete with inserted text

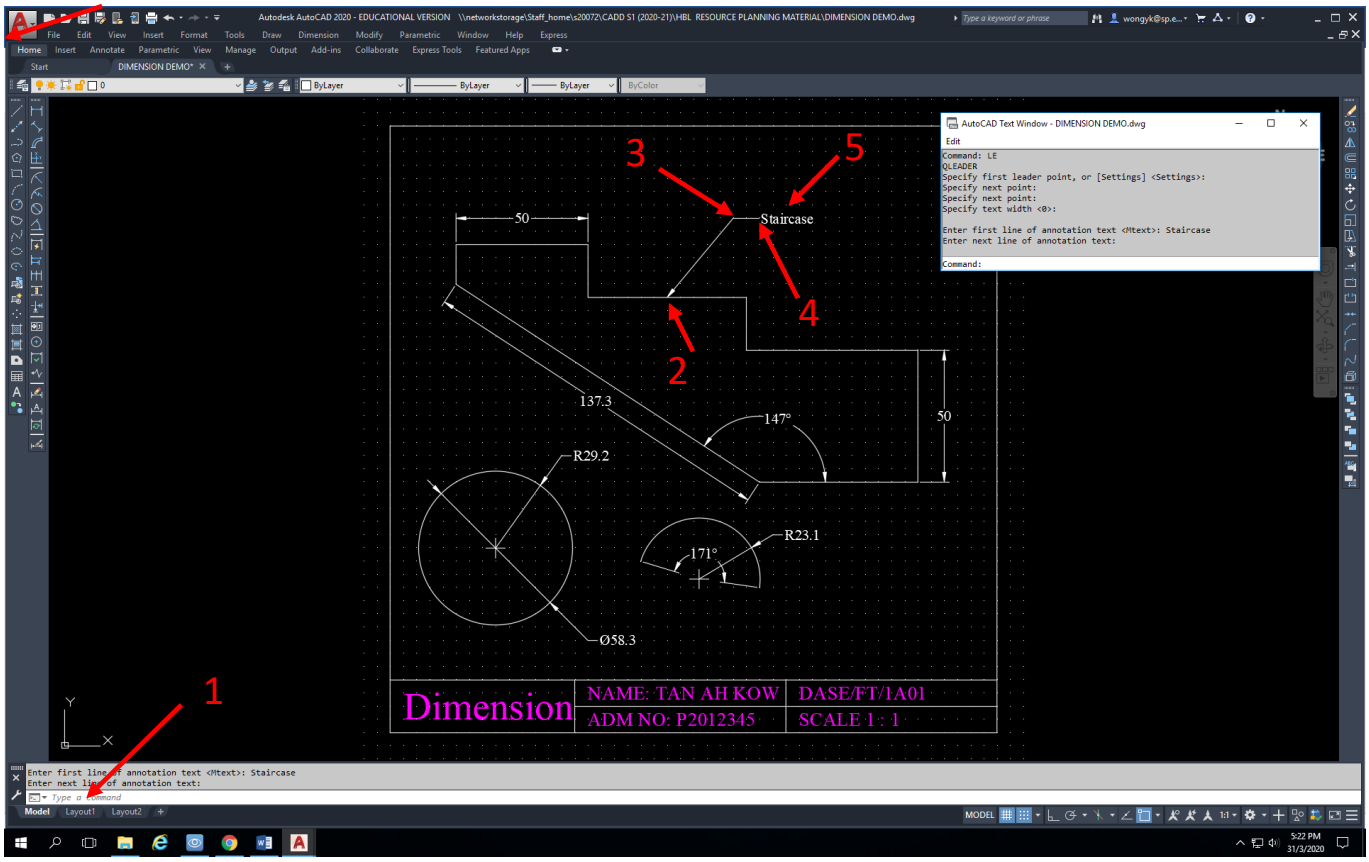

FIG 14

Method:

1. In Command bar, Type: **le** (Keyboard shortcut for Leader dimension) **(1)**
2. Specify first leader point: Click point **(2)**
3. Specify next point: Click point **(3)**
4. Specify next point: Click point **(4)**
5. Specify text width: **enter** (Press enter in keyboard)
6. Enter first line of annotation text, type: Staircase **(5)**
7. Enter next line of annotation text = **enter** (press enter in keyboard as second line of text not required)
8. Fig 9 shows the completed Leader dimension

THE END