TECHNICAL DRAWING – YEAR 12 WORKSHEETS
2021

WEEK 2 SOLUTIONS
TOPIC: PLANE GEOMETRY **DATE**: 31/05/21 To 04/06/21

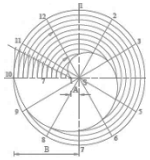
MONDAY (31/05) PLANE GEOMETRY

1. DEFINE

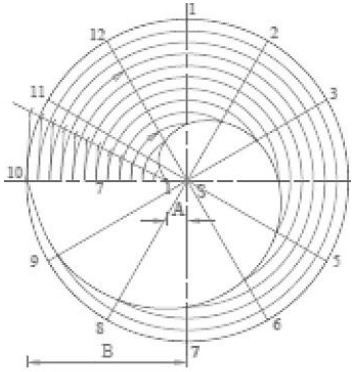
SPIRAL : A spiral is a locus of a point moving continuously in one direction along a line which is rotating about one of its ends. A Sunflower head displays florets in spirals of 34 and 55 around the outside.

2. List two career paths for Technical Drawing
   ARCHITECT
   CIVIL ENGINEER

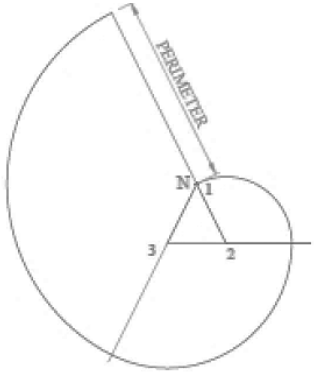
3. Sketch a CONICAL SPIRAL



TUESDAY (01/06) SPIRALS
Given pole P Limiting vectors X and Y. Draw the ARCHIMEDIAN SPIRAL(Sense : clockwise)



WEDNESDAY (02/06) INVOLUTE
Draw the involute of the given Triangle (clockwise)



THURSDAY (03/06) SCALES
Given for the Diagonal Reduction Scale of 1:50 to read Metres and Tenths of a Metre up to 3 metres
Do all the necessary calculations (note do not draw the scale)

SCALE LENGTH
Scale Length (SL) = (Maximum Reading/Length (MR)) x RF RF = Representative fraction of the scale
SL = 1/50 x 3000 = 60 mm

SCALE INTERVAL
SI = SL/MAX R
= 60/3
= 20 mm

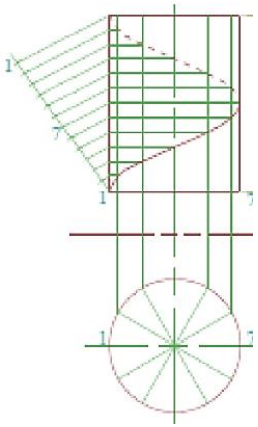
NO OF PARTS
Number of Equal Parts = Maximum Reading/Length ÷ Scale Increment/Interval (SI)
= 3m / 1m
= 3

FRIDAY(04/06) HELIX

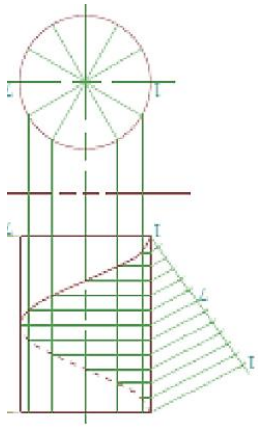
1. Define common terms related to helix
   - Pitch The **pitch** p, of a **helix** is the vertical separation of points on the **helix** as it moves through 2π
   - Revolutions turns a helix make in one movement
   - πD the area of a circle. The resultant of total length and height the helix travels.

2. Construct a Right and Left hand helical curve for one revolution **(single line helix)**

Right Hand Helix



Left Hand Helix



(NOTE: REFERENCE: Refer to TD lesson notes and TD workbook)

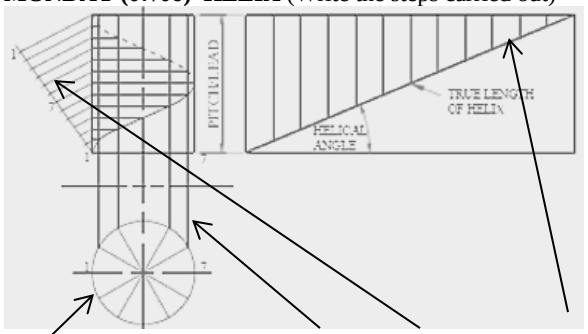
TECHNICAL DRAWING – YEAR 12

2021

WEEK 3 SOLUTIONS

TOPIC: PLANE GEOMETRY **DATE**: 07/06/21 To 11/06/21

MONDAY (07/06) HELIX (Write the steps carried out)



A Divide circle into 12 equal parts

B Divide the pitch into 12 equal parts

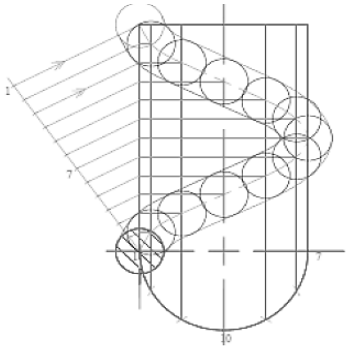
C Project lines vertically up to elevation from the plan view

D draw the true length of helix

TUESDAY (08/06) CIRCULAR SPRING

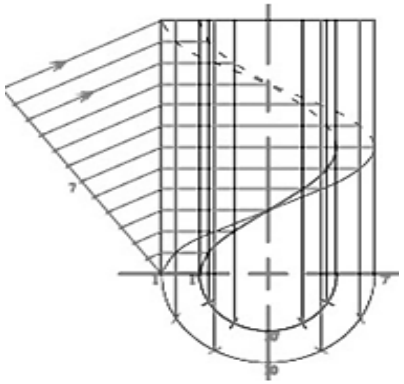
Draw the right hand circular helical spring (3/4 revolutions)

NOTE : TO DRAW ONLY ¾ REV



WEDNESDAY (09/06) FLAT PLATE

Draw external tangent to two unequal circles given below(Given answer is not to scale)



THURSDAY (10/06) CONIC SECTION

1. Name five types of Conic sections.

   circle, ellipse, parabola, Triangle, circle and hyperbola,

2. Find the value for DV if DF is 20mm for a Parabola.

   10 mm

3. Find FV of a parabola with a ratio of eccentricity of 6:4 and DV is 8mm.

   FV : DV

   6 : 4

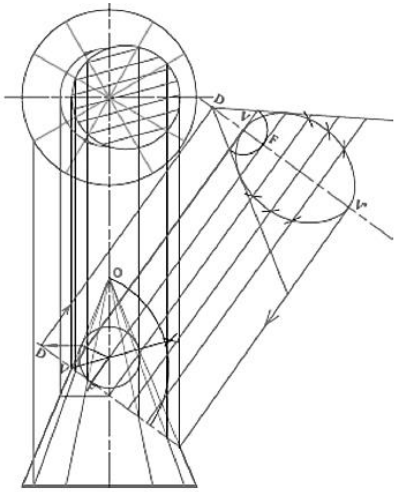
   X : 8 mm

   X = 12 mm

   FV = 12 mm

FRIDAY (11/06) CONIC SECTION (Find DVF and complete the elevation of the cone) Note: Complete the conic

The diagram on the right shows Part working to help you out)



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