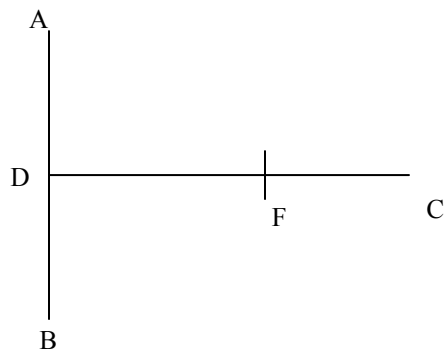


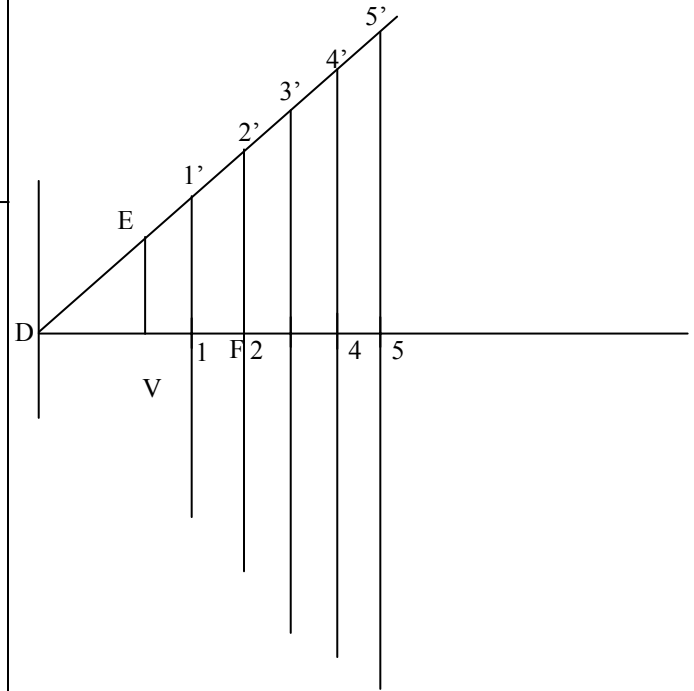
Q) A **fixed point** is 50 mm away from a **fixed line**. Draw the path traced by a point P moving such that its distance from the **fixed line** is $\frac{3}{2}$ times its distance from the **fixed point**. Also draw **tangent** and **normal** to the curve at a point 65 mm from the directrix.

A) The fixed point is the focus and the fixed line is the directrix. The ratio is given as $PD=3/2PF$ from which $e=PF/PD=2/3(<1)$. Hence the curve is an ellipse with $e=2/3$.

1) Given data: $DF = 50$; $e=2/3(m/n)$.
Draw AB (Directrix), CD (Axis) and Mark $DF=50$. (AB and CD are of any lengths).

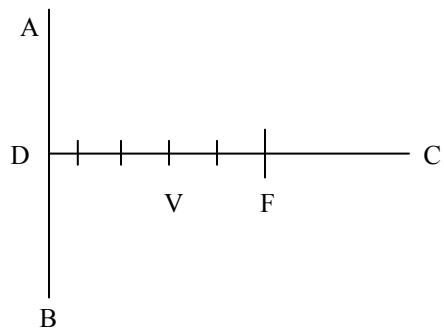


R)
S)

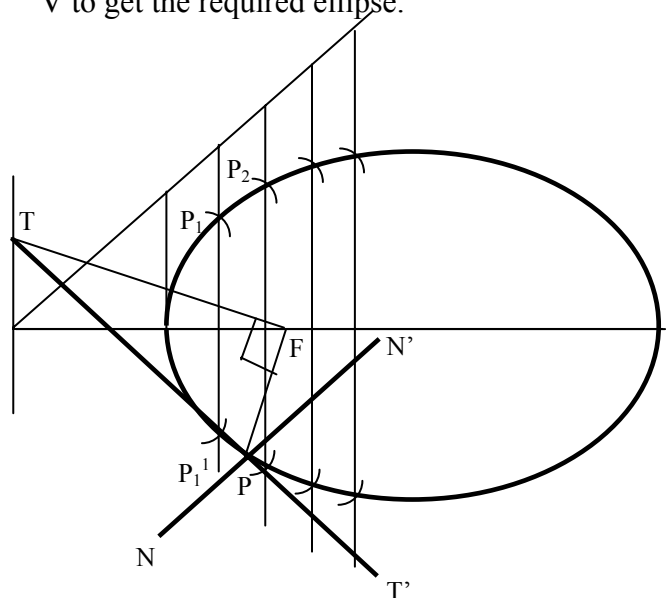


T)
U)

2) Divide DF into $2+3=5$ parts. Mark V at 2nd part after F.
(Divide DF into $(m+n)$ no. of parts. Mark V at m^{th} part after F).



5) With Centre as F & Radius = $1-1'$, cut arc on line $1-1'$ above and below to get P_1, P_1' . Similarly get the other points using $2-2'$, $3-3'$, etc. Join all points from V to get the required ellipse.



3) Draw $VE=VF$; VE is vertical line.

