Dynamics of Machinery

Credits: 3

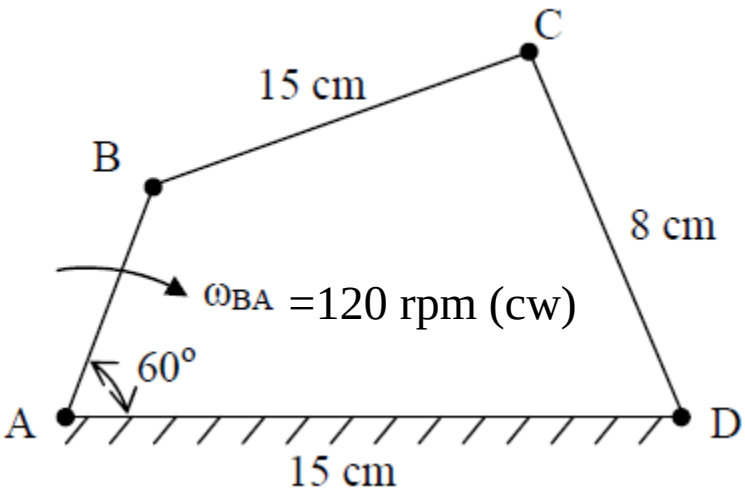
Lecturer: Abbasi

Graphical method

The following points are to be considered while solving problems by this method.

1. Draw the configuration design to a suitable scale.
2. Locate all fixed point in a mechanism as a common point in velocity diagram.
3. Choose a suitable scale for the vector diagram velocity.
4. The velocity vector of each rotating link is $\perp\!\!\!\perp$ r to the link.
5. Velocity of each link in mechanism has both magnitude and direction. Start from a point whose magnitude and direction is known.
6. The points of the velocity diagram are indicated by small letters.

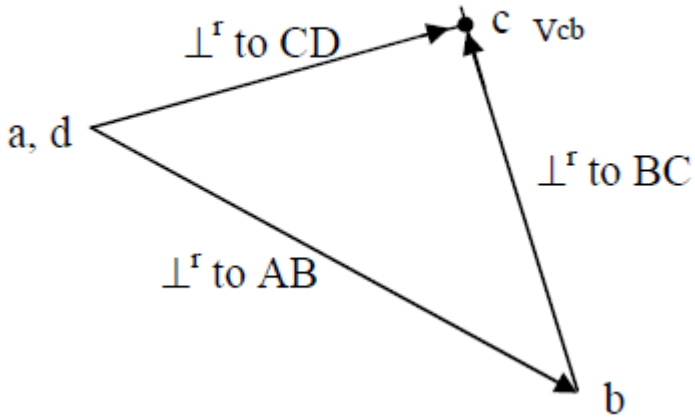
Example (1)



$V_b = \omega_{ab} r = 50.24$ cm/sec

1) 1 cm = 20 m/s = ab

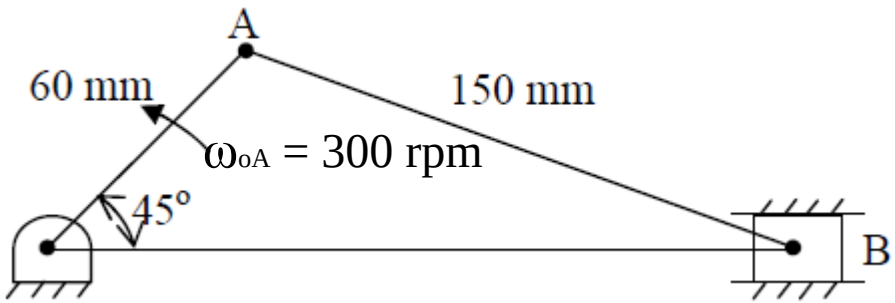
2)



3) Vc = dc = 38 cm/sec = Vcd

4) $\omega_{cd} = 38/8 = 4.75$

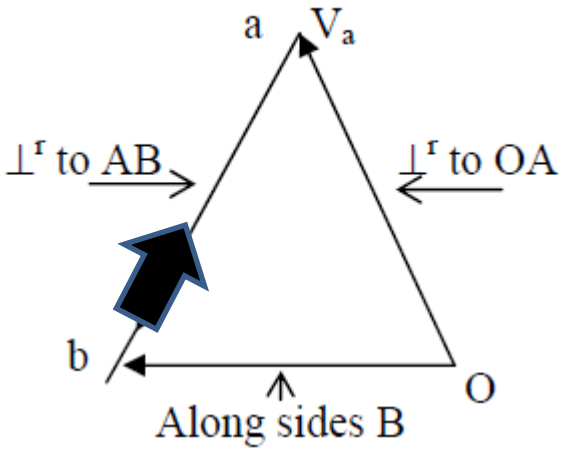
Example (2)



Va = 1884 mm/sec

1) Choose a suitable scale to draw velocity vector diagram

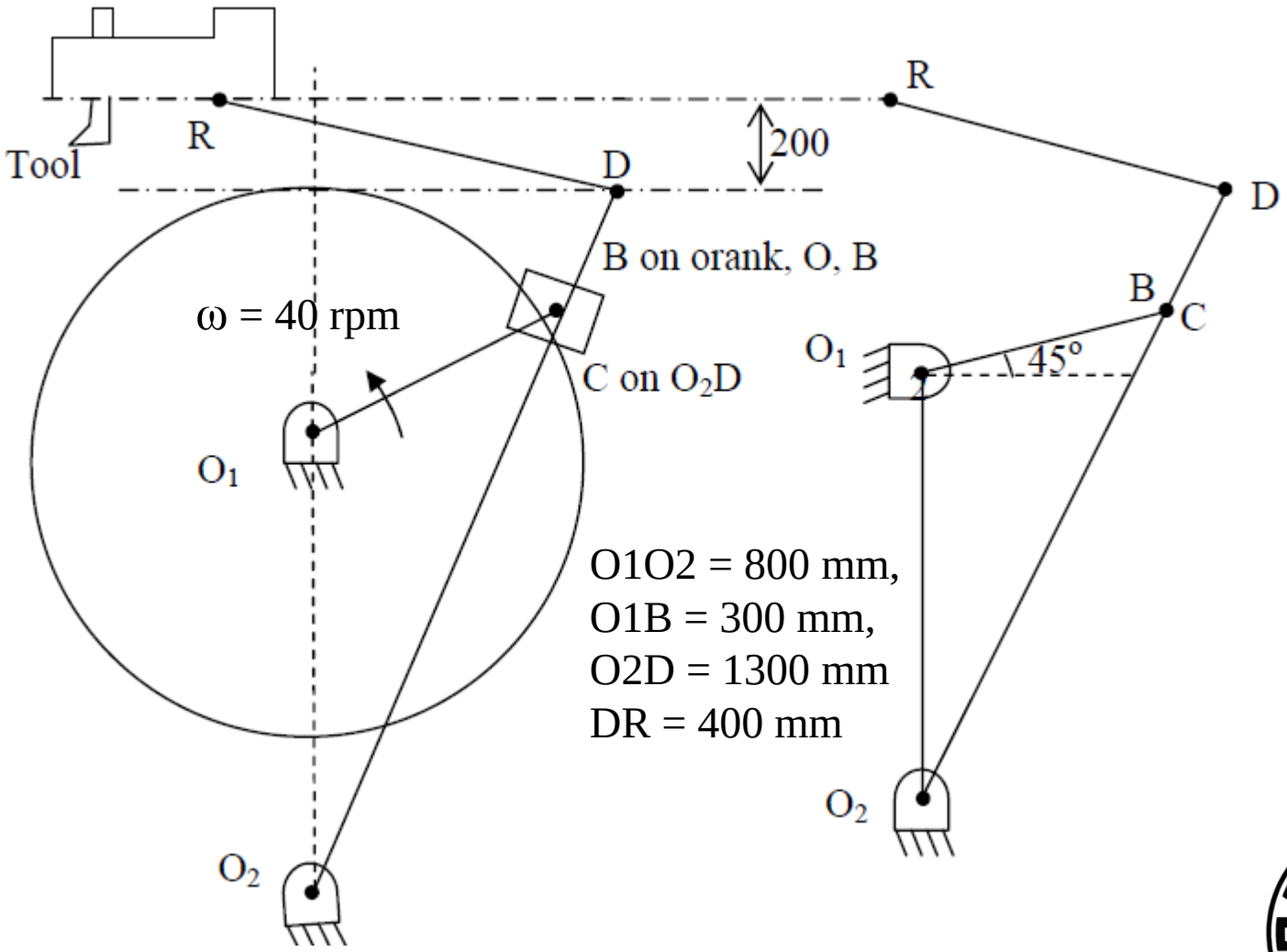
2)



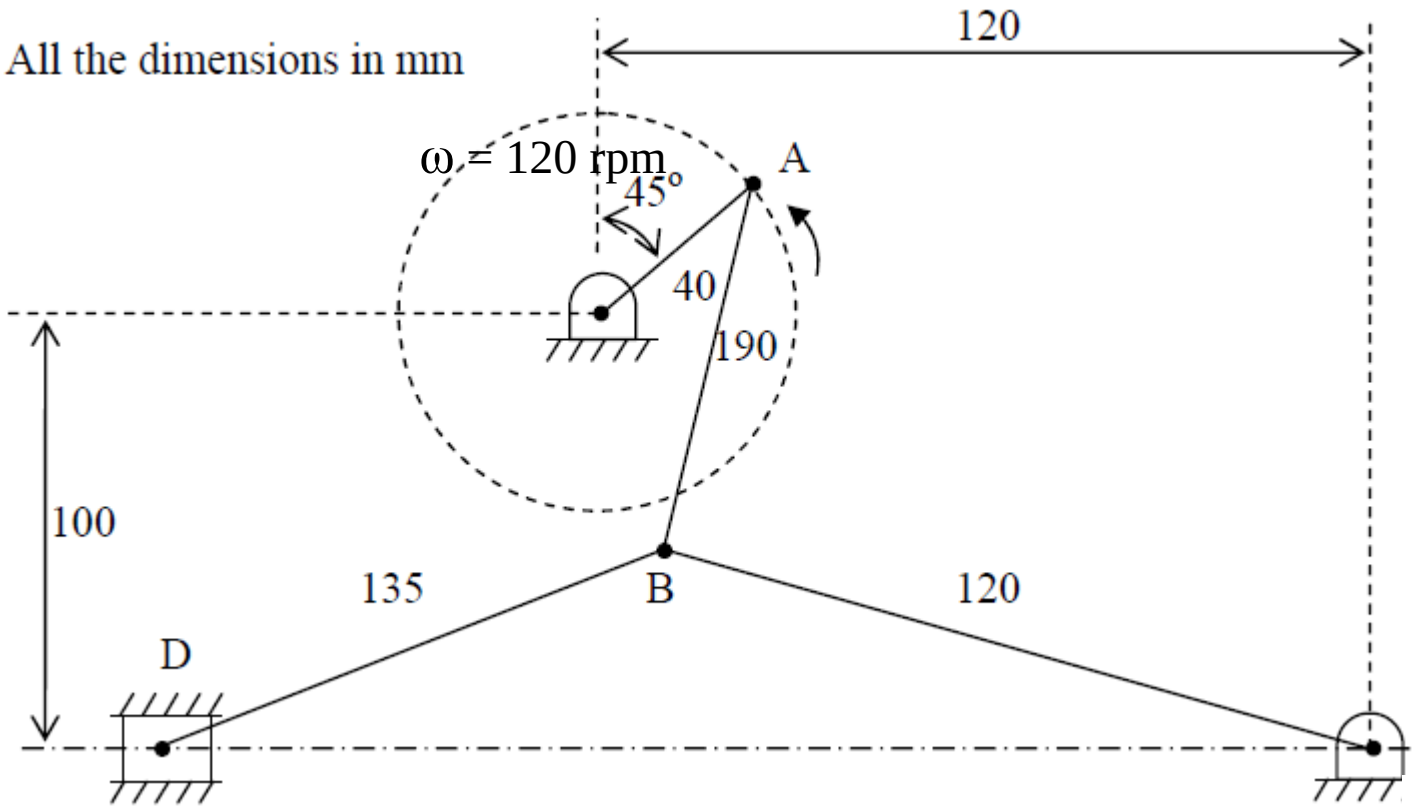
3) Vb=1300mm/sec

4) ω_{ab}= 8.66 rad/sec

Example (3)


Tool
R
D
200
R
D
B on orank, O, B
ω = 40 rpm
C on O2D
O1
O2
B
C
O1
45°
O2
O1O2 = 800 mm,
O1B = 300 mm,
O2D = 1300 mm
DR = 400 mm

Example (4)



Thank you for your attention!

Questions, please!