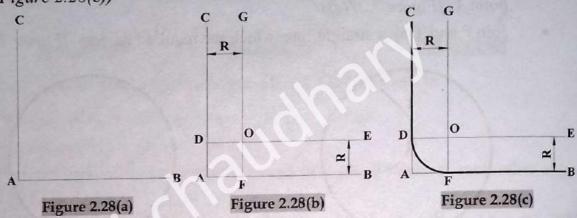
2.3.4 To Draw an Arc of Radius R and Tangent to Two Given Lines

(a) Perpendicular Lines

• AB and AC are the two given lines perpendicular to each other. (Figure 2.28(a))

• Draw lines DE and FG parallel to the given lines AB and AC respectively and at a distance of R form them. (Figure 2.28(b))

• Mark intersection of these lines as point O, which the center of the required arc. With O as center and OD (= OF = R) as radius, draw the required arc. (Figure 2.28(c))



(b) Inclined Lines

• AB and AC are the two given lines inclined to each other. (Figure 2.29(a))

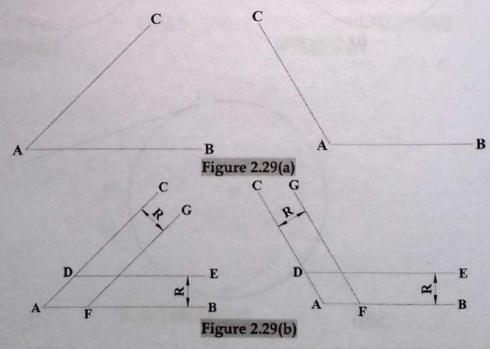
• Draw lines DE and FG parallel to the given lines AB and AC respectively and at

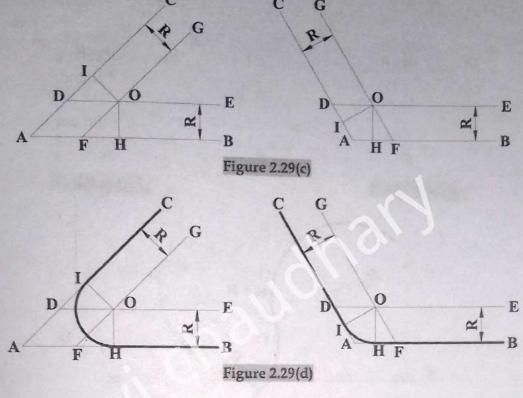
a distance of R form them. (Figure 2.29(b))

Mark intersection of these lines as point O, which the center of the required arc.
Drop perpendiculars from point O to the lines AB and AC and mark the foot of
perpendiculars as H and I respectively. Then H and I are the points of tangency.
(Figure 2.28(c))

With O as center and OH (= OI = R) as radius, draw the required arc.

(Figure 2.28(d))





2.3.5 To Draw an Arc of Radius R and Tangent to a Given Straight Line and a Given Circle (or a Circular Arc)

(a) Outside to the Given Circle

- Draw given straight line AB. Mark a point O1 at a given distance from the given line and draw a given circle with O1 as center and R1 as radius. (Figure 2.30(a))
- Draw a straight line CD parallel to the line AB and at a distance of R from it. (Figure 2.30(b))
- With O1 as center and R + R1 as radius draw an arc intersecting the line CD at point O, which is the center of the required arc. (Figure 2.30(c))
- Join O and O1 to get point of tangency E on the given circle and drop perpendicular from O to line AB to get the point of tangency F on the given line. (Figure 2.30(d))
- With O as center and OE (= OF = R) as radius, draw the required arc. (Figure 2.30(e))

