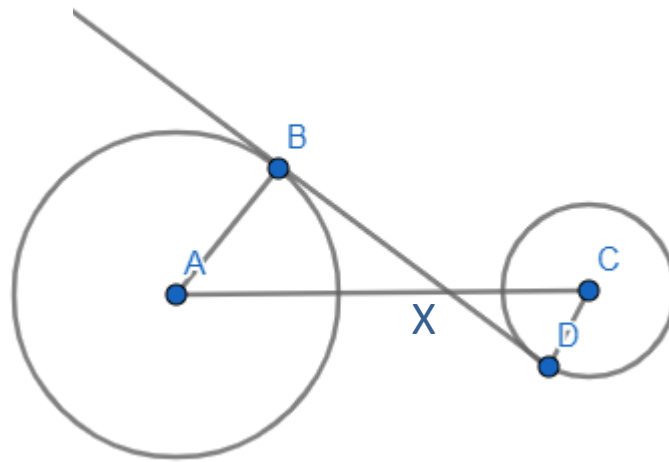


March 13th

The centres of two circles of radii 6cm and 2cm, are 12cm apart.

Find the length of their common external tangent.



Using similar triangles ABX and CDX

$$AB:CD = 6:2 = 3:1 \text{ (radii)}$$

Therefore X divides the line AC in the same ratio

AC is 12cm, therefore AX=9cm and CX=3cm

Both triangles are right-angled, so using Pythagoras gives

$$BX^2 = 9^2 - 6^2 = 45$$

$$DX^2 = 3^2 - 2^2 = 5$$

$$\text{Therefore the length of } BD = \sqrt{45} + \sqrt{5} = 4\sqrt{5}$$