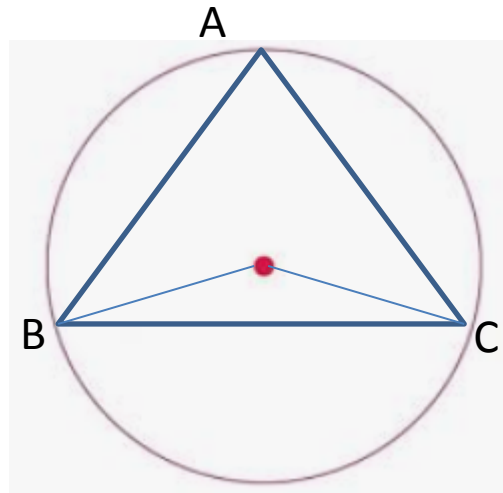


March 31st

Find the radius of a circle which circumscribes an isosceles triangle with sides 5cm, 5cm and 6cm.



Use cosine rule to find angle CAB

$$\cos A = \frac{5^2 + 5^2 - 6^2}{2 \times 5 \times 5} \quad \text{hence} \quad A = 73.739\dots$$

The angle at the centre BOC is twice the angle at the circumference

Therefore $\angle BOC = 147.479\dots$

Now using the cosine rule in triangle BOC

$$\cos \angle BOC = \frac{r^2 + r^2 - 6^2}{2 \times r \times r}$$

Hence

$$r^2(2 - 2\cos \angle BOC) = 36$$

Therefore

$$r = \frac{25}{8} \text{ cm}$$