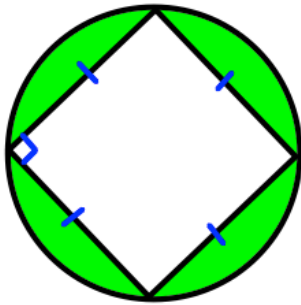


September 6th

Shown is a square and a circle.

The area of the shaded region is $100(\pi - 2) \text{ cm}^2$.

What's the diameter of the circle?



Call the diameter $2r$

Then the diagonals of the square are both $2r$

So area of the square is $\frac{1}{2} \times 2r \times 2r = 2r^2$

And area of circle = πr^2

Shaded area is therefore $\pi r^2 - 2r^2$

Factorising gives $r^2(\pi - 2)$

Therefore $r=10$

So **diameter = 20cm**