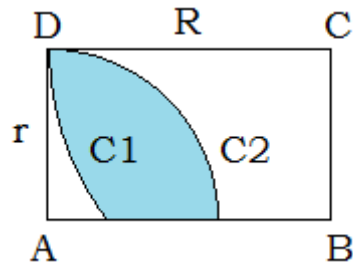


Princess Vulnavia presents ... Cloud 9; Revision Raindrops

Arc Length

Raindrop 7a



The diagram shows the rectangle ABCD, the arc C1 of a circle centre C and radius R and the arc C2 of a circle centre A radius r.

Find the perimeter of the shaded region in terms of R and r.

The answer follows on the next page ...

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Raindrop 7a

Answer: The perimeter of the shaded region = $\frac{\pi}{180} R \sin^{-1}\left(\frac{r}{R}\right) + \frac{1}{2}\pi r + \sqrt{R^2 - r^2} + r - R$