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Question Number: **10**



$$\bullet \frac{CD}{AD} = \frac{AC}{BC} = 1$$

• $\angle CAD = \angle CBA$ because two angles on an isosceles triangle are equal

• \therefore if $\angle CAD = \angle CBA$ then $\angle DCA = \angle CAB$ as these angles correspond on similar isosceles triangles.

ii)

$$a^2 + a^2 = ay^2$$

iii) $y = a(1 - 2\cos\theta)$

$$a - 2a\cos\theta$$

$$a - \frac{2a}{\sqrt{2}} \circledast$$

$$a\sqrt{2} - 2a\theta$$

iv) $y \leq 3a$

$$b \quad x^2 + y^2 = r^2$$

$$i) \quad V = \frac{1}{3} \pi r^3 (2 - 3 \sin \theta + \sin^3 \theta)$$

~~$$\pi r^3 (2 - r \sin \theta + \sin^3 \theta)$$~~

$$-ii) \quad 1. \quad V = \frac{\pi r^3}{4} \quad \frac{\pi r^3}{3} (2 - 3 \sin \theta)$$

~~$$iii) \quad \frac{1}{2}$$~~

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