

Start here for

Question Number:

10

a) a) i) $\triangle ABC$ & $\triangle ACD$ are both isosceles,
 $\angle ADC$ therefore must = $\angle BCD$

$\therefore \triangle ABC$ is similar to $\triangle ACD$ - SAS.

ii) $x^2 = a^2 + ay$

~~$x^2 = a^2 + ay$~~ $CB^2 = AD^2 + AB$

$\therefore x^2 = a^2 + ay$.

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

$= a - 2a\cos\theta$

$y = (\text{side})a - 2a(\text{both sides})\cos\theta$.

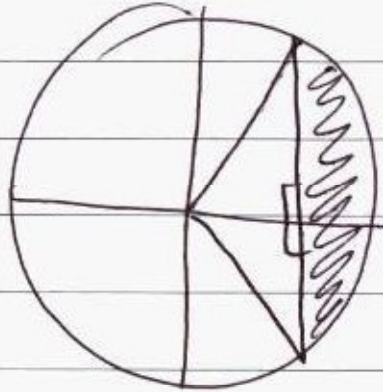
iv) $y \leq 3a$

$a + 2a = 3a$

$\therefore y \leq 3a$.

b) $x^2 + y^2 + z^2 = r^2$ - centre $(0,0,0)$

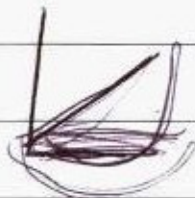
$$i) V = \frac{\pi r^3}{3} (2 - 3\sin\theta + \sin^3\theta)$$



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

ii) (1) 45°

(2) $\frac{2}{5}$



Additional writing space on back page.