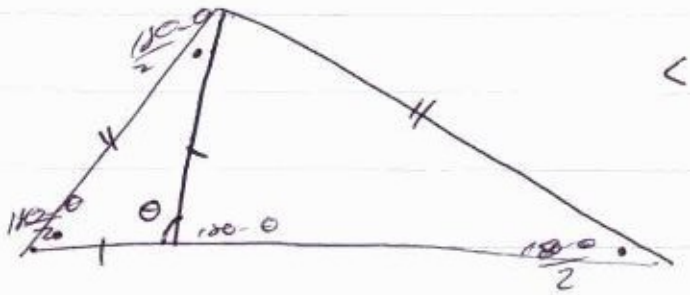
Start here for Question Number: 10

a) i) In $\triangle ABC$, $\triangle ACD$

$\angle CAD = \angle CBD$ (base angles of isosceles triangle are equal)

$\angle ACD = \angle CDB$



$\angle DCB = 180 - (180-\theta) + \frac{180-\theta}{2}$

$= \theta + \frac{180-\theta}{2}$

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

$x^2 = a^2 - 2ay\cos\theta$

$x^2 = x^2 - (ay)^2$

iii) $x^2 = a(a+y)$

$\frac{x^2}{a} = a + y$

$y = \frac{x^2}{a} - a$

5)

iv) since θ must be $< \pi/2$

$y \leq 3a$

b i)

$OA = r\sin\theta$

$\sin\theta = \frac{OA}{r}$

$r\sin\theta = OA$

$BA = r - r\sin\theta$

Additional writing space on back page.

(b)

ii) i) ~~A~~ $\frac{1}{4}$ ~~rad.~~ $\theta =$ ~~...~~ $\pi/6$

ii) $V = \frac{1}{2}\pi r^3$

$1/8$

You may ask for an extra Writing Booklet if you need more space to answer question 10.