4) a) $c^2 = a^2 + b^2 - 2ab\cos C$ (1)

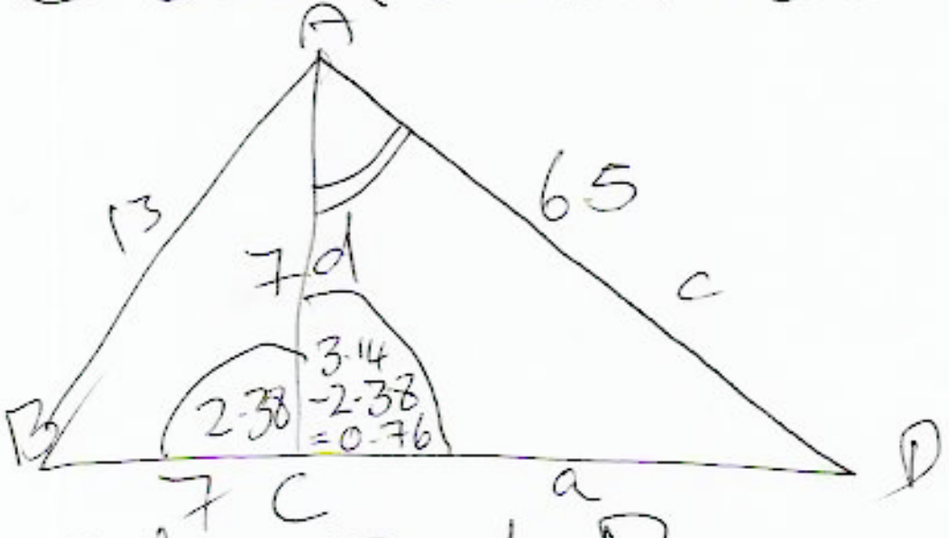
$13^2 = 7^2 + 7^2 - 2\times 7\times 7\cos C$

$169 = 98 - 98\cos C$

$\cos C = \frac{169 - 98}{-98} = -0.725$

$C = \cos^{-1}(-0.725) = 2.38^c$

b)



Sin Rule: Find D

$\frac{d}{\sin D} = \frac{c}{\sin C} \Rightarrow \sin D = \frac{d\sin C}{c}$

$\sin D = \frac{7\times \sin 0.76}{6.5} = 0.74$

So $D = \sin^{-1}(0.74) = 0.83^c$

5) a) $\sum_{r=4}^{r=7} 2^r = 2^4 + 2^5 + 2^6 + 2^7$

b) i) $\sum_{r=4}^{30} 2^r$ Geometric series with 27 terms, common ratio 2