5) $h_p = 500km$ ^ $v_p = 10 \frac{km}{s}$ ^ $\nu = 120°$

$r_p = 6378 + 500 = 6878\,km$

$h = r_p \cdot v_p = 68780 \frac{km^2}{s} \rightarrow h = \sqrt{\mu p}$

$r_p = \frac{p}{1+e} \rightarrow e = \frac{p}{r_p} - 1 = 0,725$

$\tan(\gamma) = \frac{e \cdot \operatorname{sen}(\nu)}{1 + e \cdot \cos(\nu)} = 0,985 \Rightarrow \gamma = 44,57°$

$$r_{120} = \frac{p}{1 + e\cos(120)} = 18616{,}86\ km$$

$$h_{120} = r_{120} - r_T = 12238{,}86\ km$$