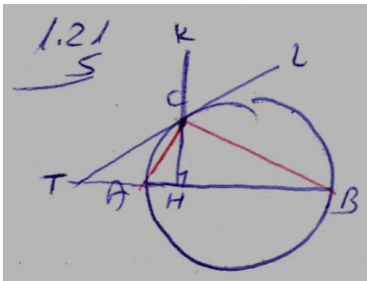
1.21



א. $\measuredangle ACB = 90^\circ$ נשענות ל קוטר

(זוויות בין משיק למיתר ...) $\measuredangle TCA = \alpha = \measuredangle ABC$

$\measuredangle HCB = 90^\circ - \alpha$

(S.S) $\triangle TCA \sim \triangle TBC$

$\measuredangle CAT = \measuredangle TCB = 90^\circ + \alpha$

(חיצונית ל $\triangle ACH$) $\measuredangle CAT = \measuredangle AHC + \measuredangle ACH$

$90 + \alpha = 90 + \measuredangle ACH \rightarrow \measuredangle ACH = \alpha = \measuredangle TCA$

AC חוצה זווית $\measuredangle TCH$

(קודקודיות) $\measuredangle TCH = \measuredangle KCL = 2\alpha$

$\measuredangle LCB = 180^\circ - \measuredangle KCL - \measuredangle BCH = 180 - 2\alpha - (90 - \alpha) = 90 - \alpha$

$\measuredangle LCB = \measuredangle BCH \Leftarrow$ BC חוצה זווית $\measuredangle LCH$

ב. לפי משפט חוצה זווית פנימית (AC):

$$\frac{TC}{CH} = \frac{TA}{AH}$$

" " " חיצונית (CB):

$$\frac{TB}{BH} = \frac{TC}{CH}$$

$$\frac{TA}{AH} = \frac{TC}{CH} = \frac{TB}{BH} \rightarrow \frac{TA}{TB} = \frac{HA}{HB}$$