

Zadatak 16. U konveksnom peterokutu $ABCDE$ točke M , N , P i Q polovišta su stranica \overline{AB} , \overline{BC} , \overline{CD} i \overline{DE} . Dokaži da je dužina koja spaja polovišta S i T dužina \overline{MP} i \overline{NQ} paralelna stranici \overline{AE} i da je $|ST| = \frac{1}{4}|AE|$.

Rješenje. Kako je $\overrightarrow{MS} = \frac{1}{2}\left(\frac{1}{2}\overrightarrow{AB} + \overrightarrow{BC} + \frac{1}{2}\overrightarrow{CD}\right)$ te $\overrightarrow{MT} = \frac{1}{2}(\overrightarrow{MQ} + \overrightarrow{MN}) = \frac{1}{2}\left(\overrightarrow{AB} + \overrightarrow{BC} + \overrightarrow{CD} + \frac{1}{2}\overrightarrow{DE} + \frac{1}{2}\overrightarrow{BC}\right)$, to je $\overrightarrow{ST} = \overrightarrow{MT} - \overrightarrow{MS} = \frac{1}{4}(\overrightarrow{AB} + \overrightarrow{BC} + \overrightarrow{CD} + \overrightarrow{DE}) = \frac{1}{4}\overrightarrow{AE}$.

