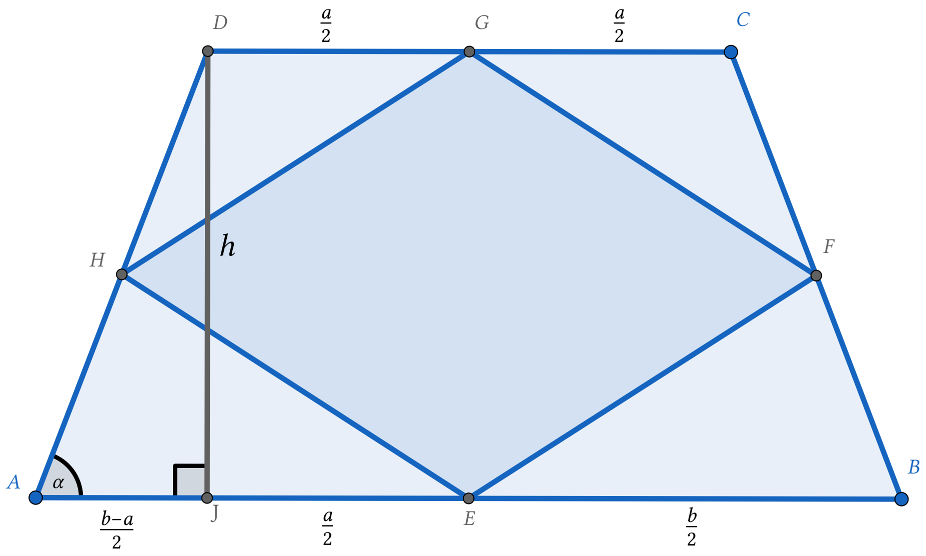
133-PISAREK



$|AD| = |BC| \quad |AB| = b \quad |CD| = a \quad b > a$

$|\measuredangle BAD| = |\measuredangle ABC| = \alpha$

$|AE| = |EB| \quad |BF| = |FC| \quad |CG| = |GD| \quad |DH| = |HA|$

obliczyć P_{EFGH}

$a, b \in \mathbb{R}_+; \quad \alpha \in (0^\circ, 90^\circ)$

$|DJ| = h_{ABCD} = h$

$P_{AEH} = \frac{b}{4} h_{AEH}; \quad h_{AEH} = \frac{h}{2}$ (z tw. Talesa dla $\triangle AJD$); analogicznie dla $\triangle EBF, \triangle GCF, \triangle HDG$

$P_{EFGH} = P_{ABCD} - (P_{AEH} + P_{EBF} + P_{GCF} + P_{HDG}) = \frac{(a+b)h}{2} - (\frac{bh}{8} + \frac{bh}{8} + \frac{ah}{8} + \frac{ah}{8}) = \frac{(a+b)h}{2} - \frac{(a+b)h}{4} = \frac{(a+b)h}{4}$

$|DG| = |EJ| = \frac{a}{2} \quad |AJ| = |AE| - |EJ| = \frac{b}{2} - \frac{a}{2} = \frac{b-a}{2}$

$tg\alpha = \frac{2h}{b-a}$ (z $\triangle AJD$); $\quad h = \frac{(b-a)tg\alpha}{2}$

$P_{EFGH} = \frac{(a+b)h}{4} = \frac{(b+a)(b-a)tg\alpha}{8} = \frac{(b^2-a^2)tg\alpha}{8}$