Nederlandse Wiskunde Olympiade voor Bedrijven

Friday, 27 January 2017

- Available time: 20 minutes.
- For this "uitsmijter" only an answer is required, no calculation or proof. A correct and complete answer is worth 10 points. For an answer that is not complete or not completely correct you may also get some points.
- Formula sheets and calculators are not allowed. You can only use a pen, compass, ruler or set square and of course your mental skills.
- Good luck!

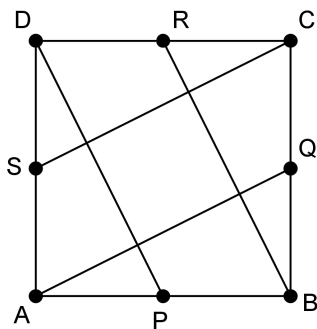For the contest managers: | Score first round: | Score uitsmijter:
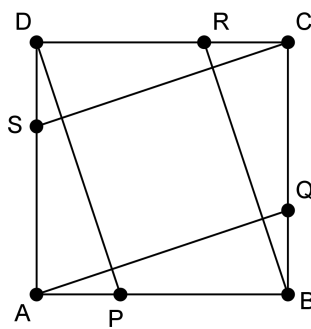
Name:

Company:

Uitsmijter

A square $ABCD$ has sides of length 6. On sides AB, BC, CD and DA respectively there are points P, Q, R and S. We consider the quadrilateral enclosed by the four lines AQ, BR, CS and DP.
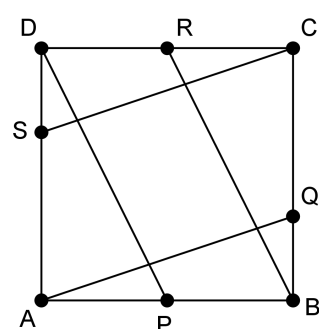
(a) Suppose $|AP| = |BQ| = |CR| = |DS| = 3$. Calculate the area of the enclosed quadrilateral.
(b) Suppose $|AP| = |BQ| = |CR| = |DS| = 2$. Calculate the area of the enclosed quadrilateral.
(c) Suppose $|AP| = |CR| = 3$ en $|BQ| = |DS| = 2$. Calculate the area of the enclosed quadrilateral.

(a)   (b)   (c)

Answer:

(a)

(b)

(c)