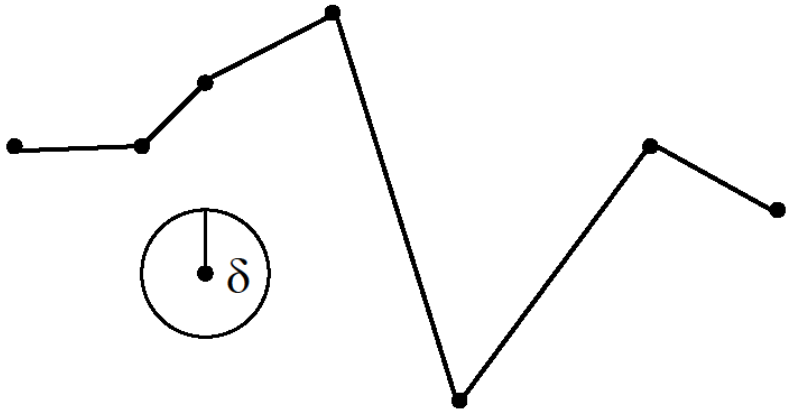
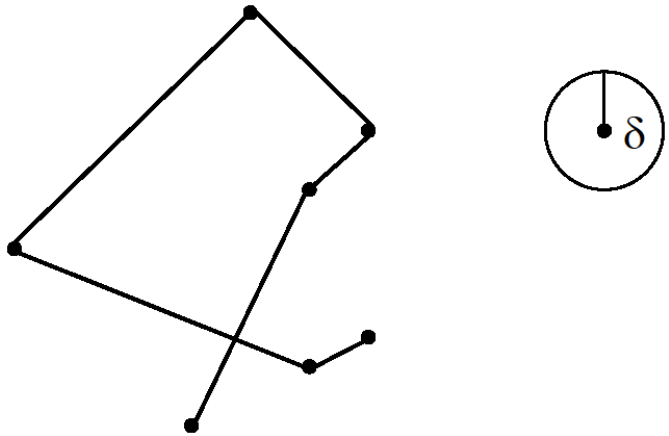
Exercise 9-3 *Compression of trajectories*

Approximate the following trajectories with the Douglas Peucker Algorithm

a)



b)



Douglas-Peucker Algorithm

Given: A trajectory $Q=((x_1,t_1), \ldots, (x_l,t_l))$ of l length.

Searched: Q‘ with l Q‘ l<< l and approximation error smaller than δ .

Algorithm:

DP(Q, δ)

Q‘ = $((x_1,t_1), (x_l,t_l))$

FOR ALL (x_i,t_i) *in Q*

IF $Error(x_i, Q') > \delta$ THEN

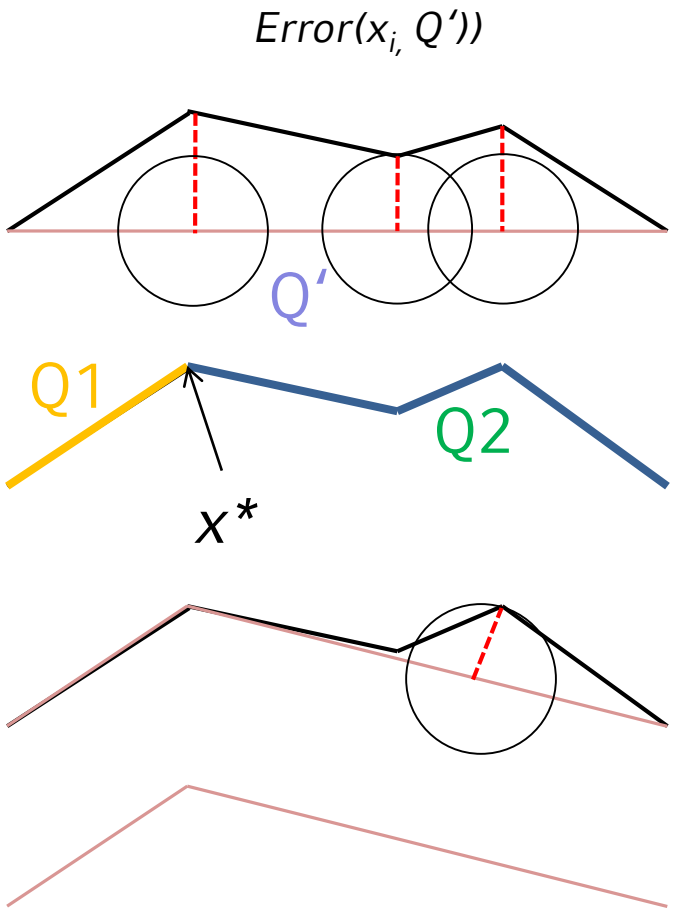
determine x^* with max($Error(x_i, Q')$)

$(Q1,Q2) = split(Q,x^*)$

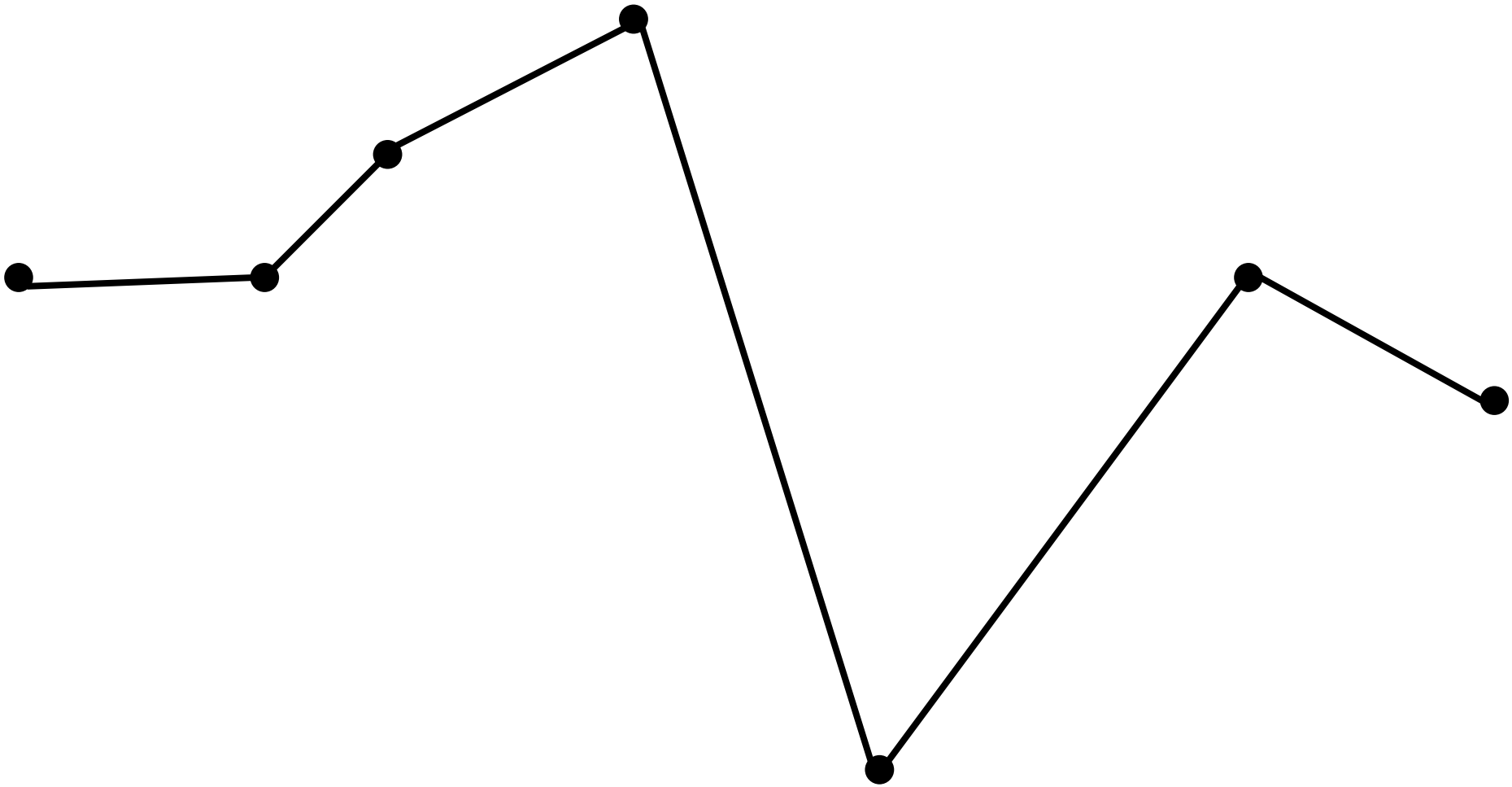
RETURN $DP(Q1, \delta)$ $DP(Q2, \delta)$

ENDFOR

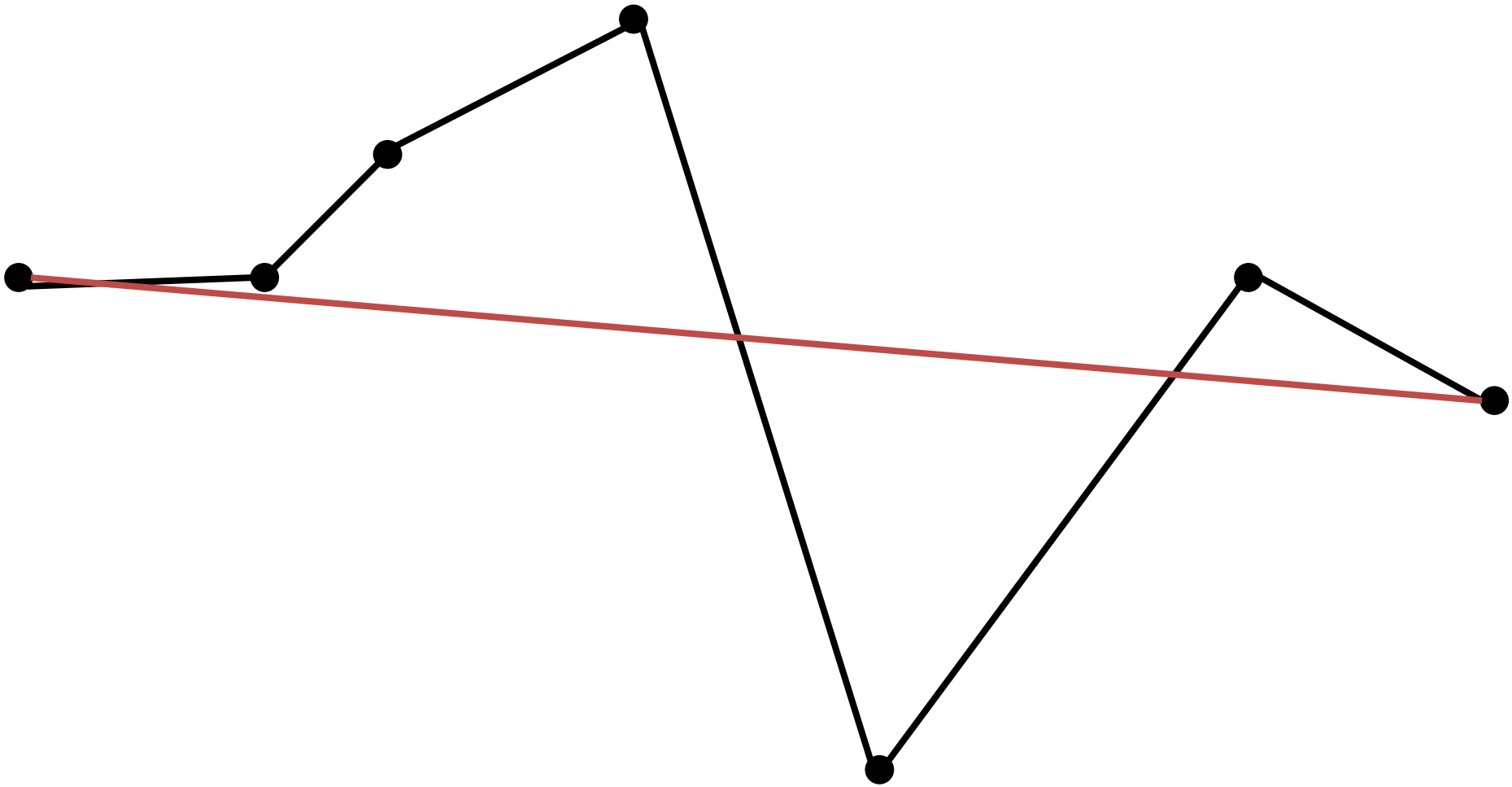
RETURN Q‘



9-3 a)



9-3 a)



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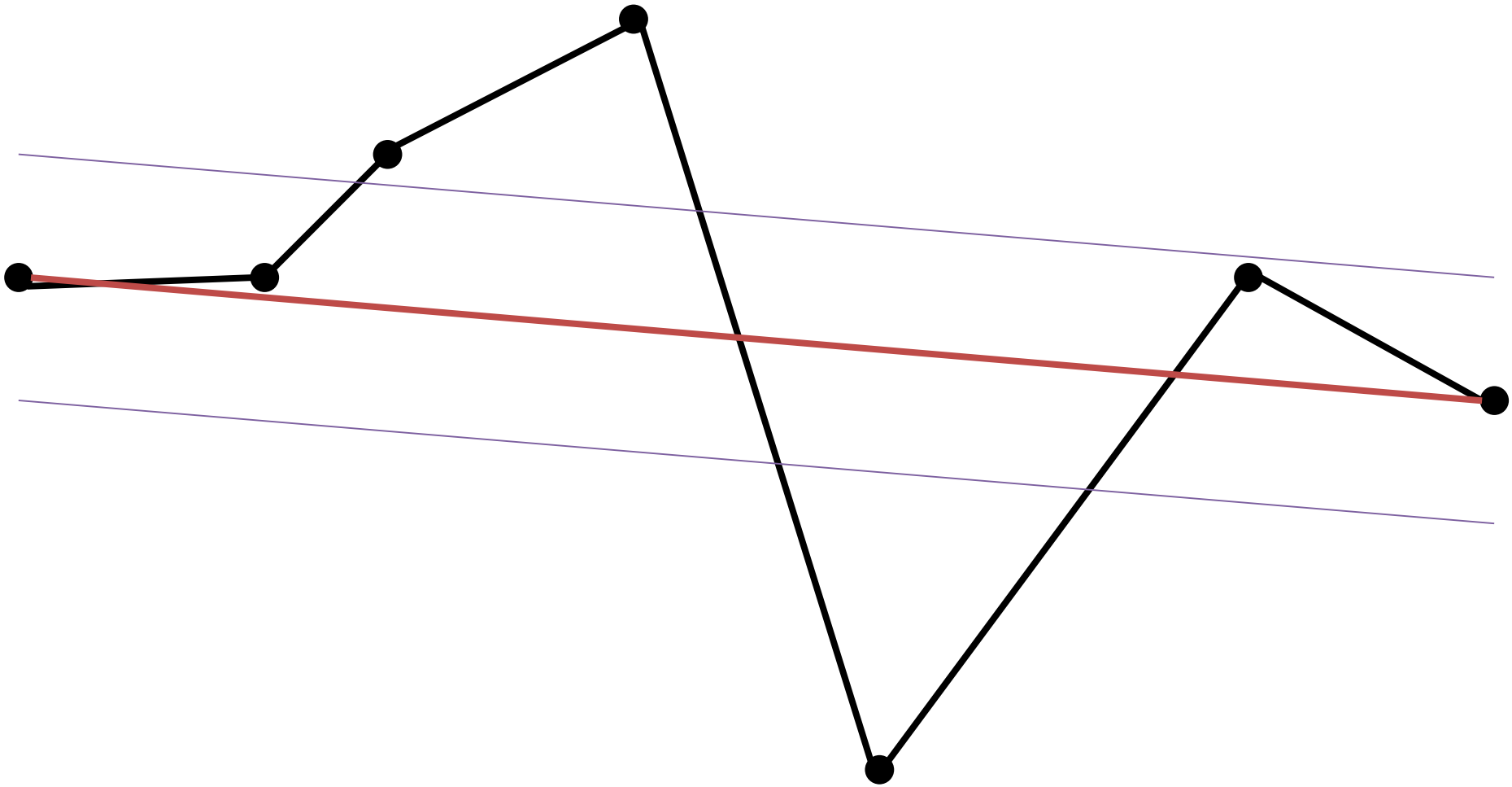

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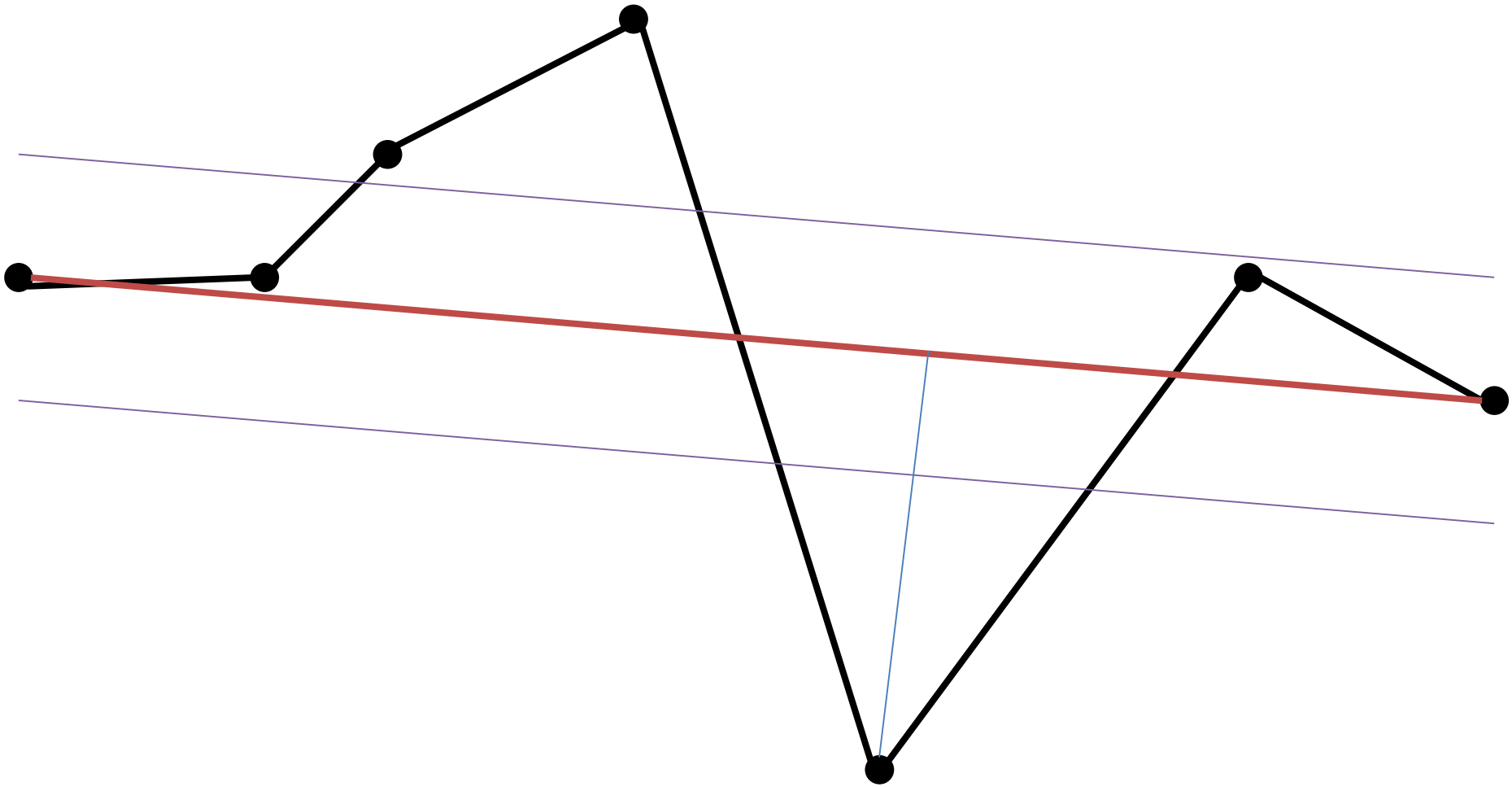
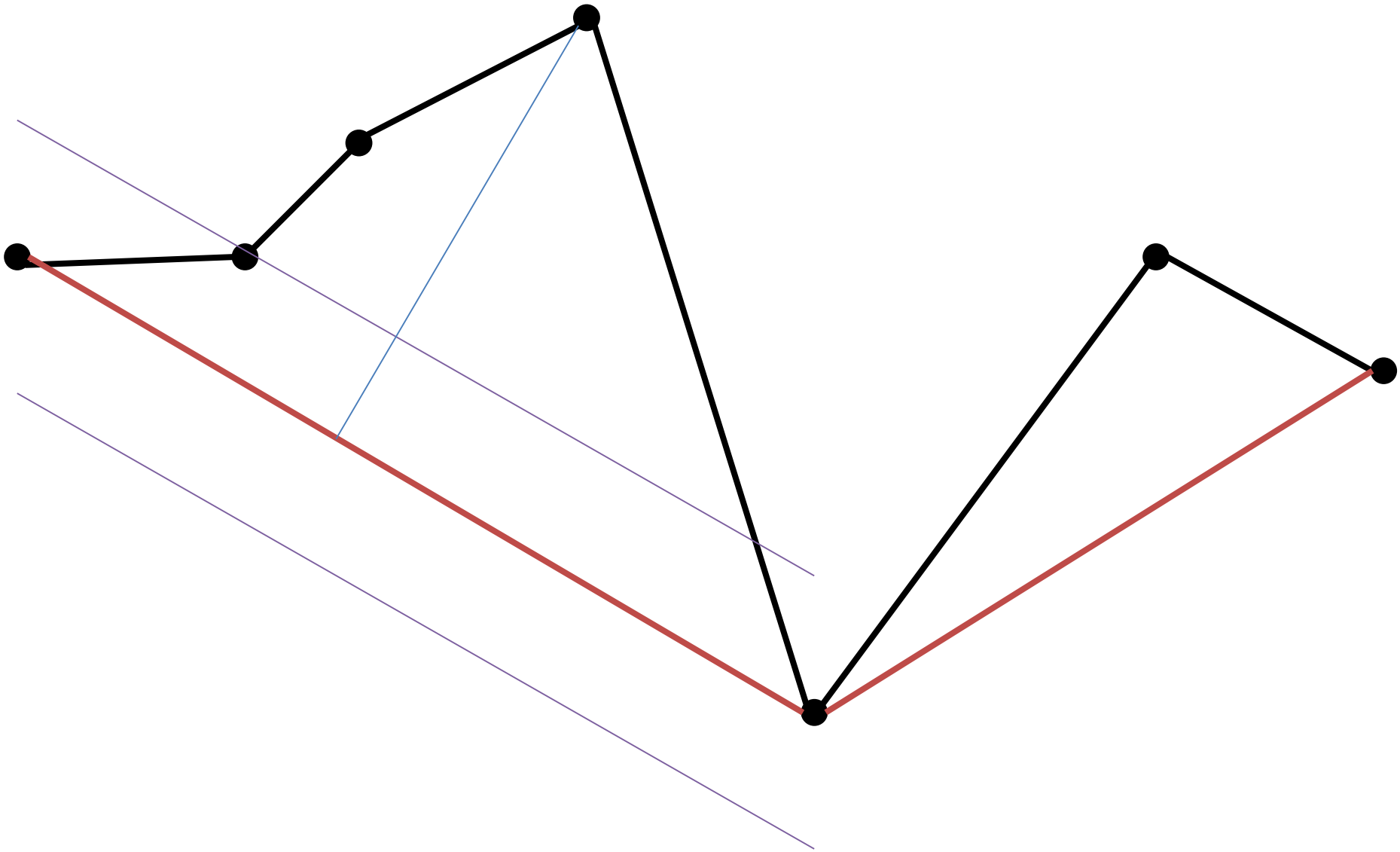


9-3 a)



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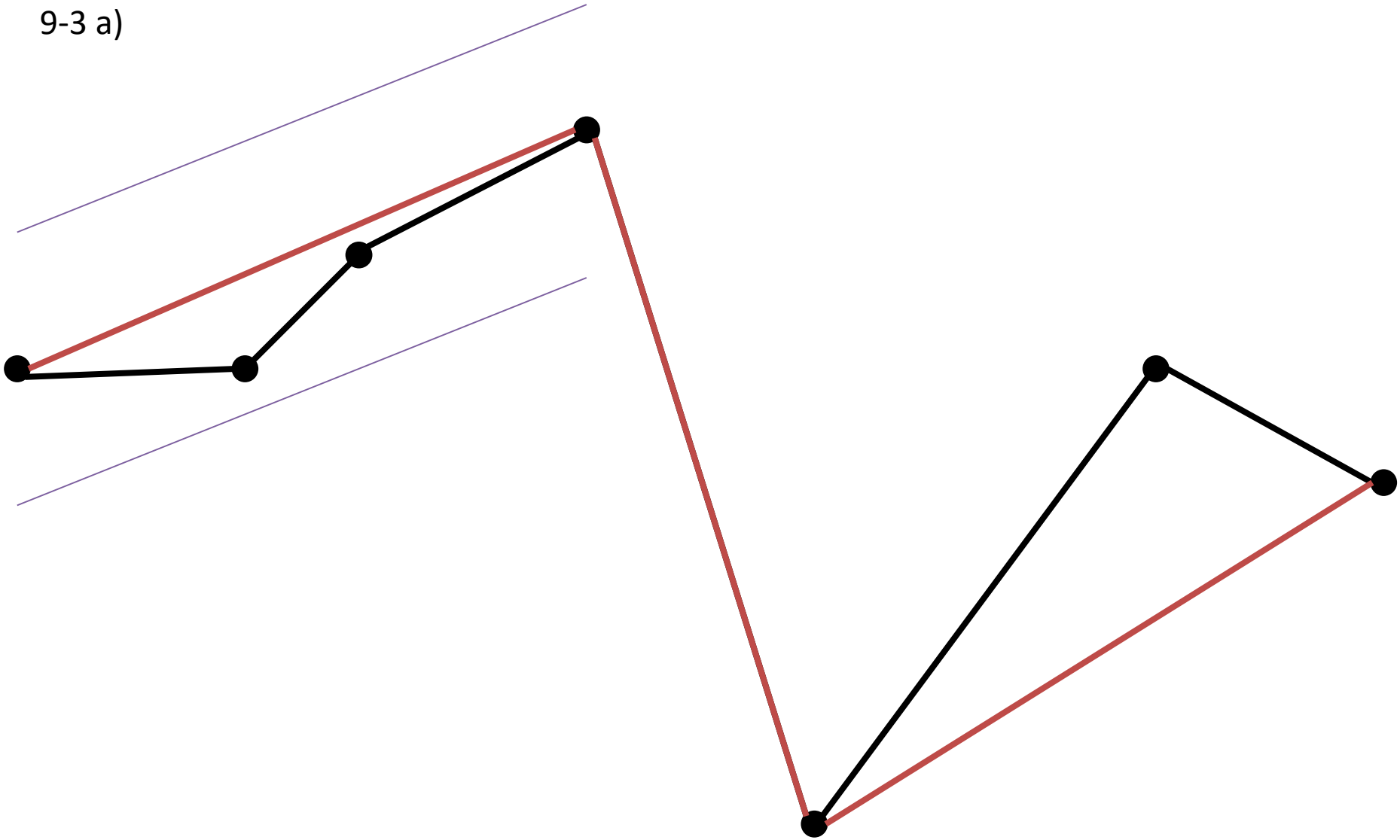

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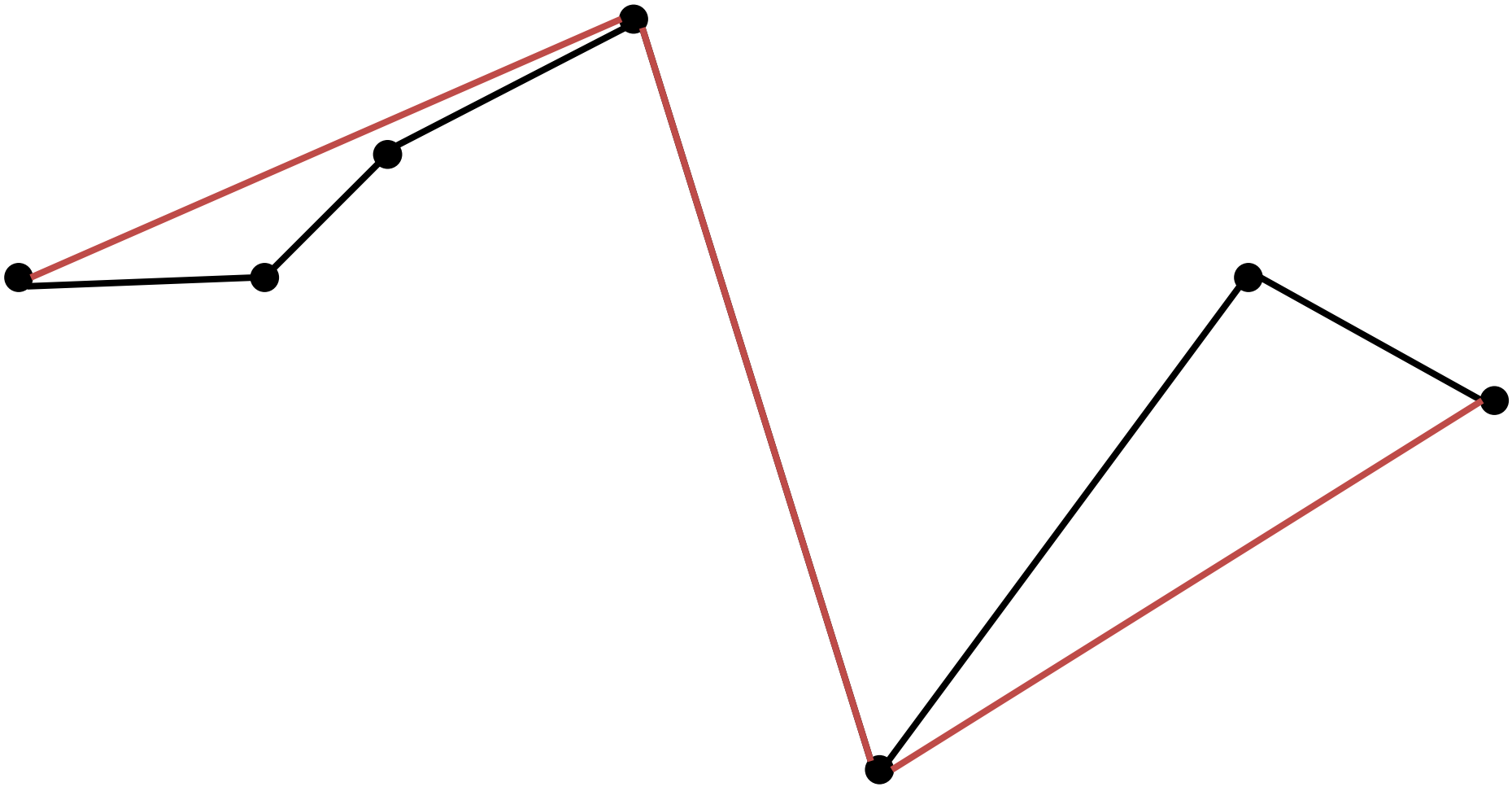

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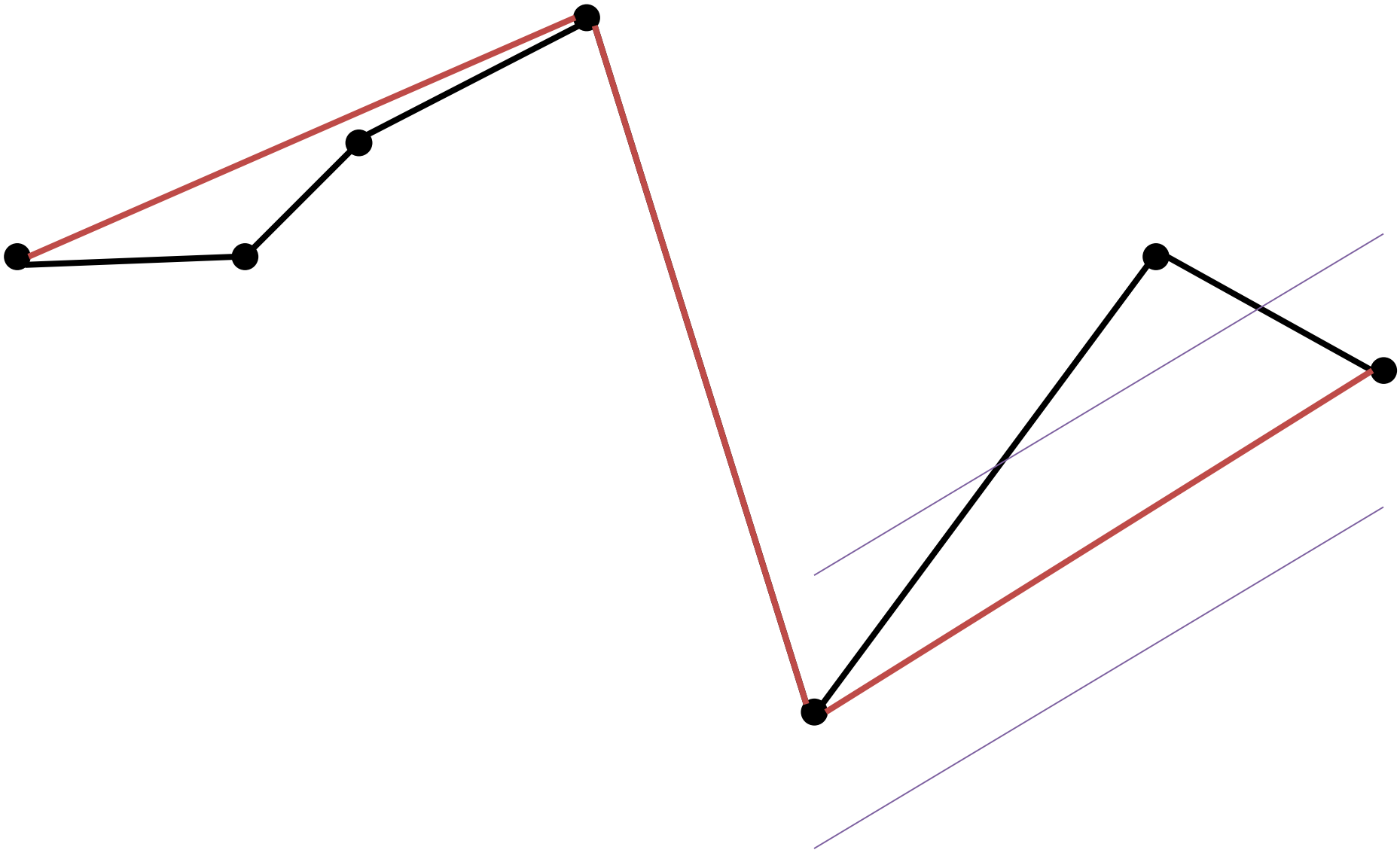

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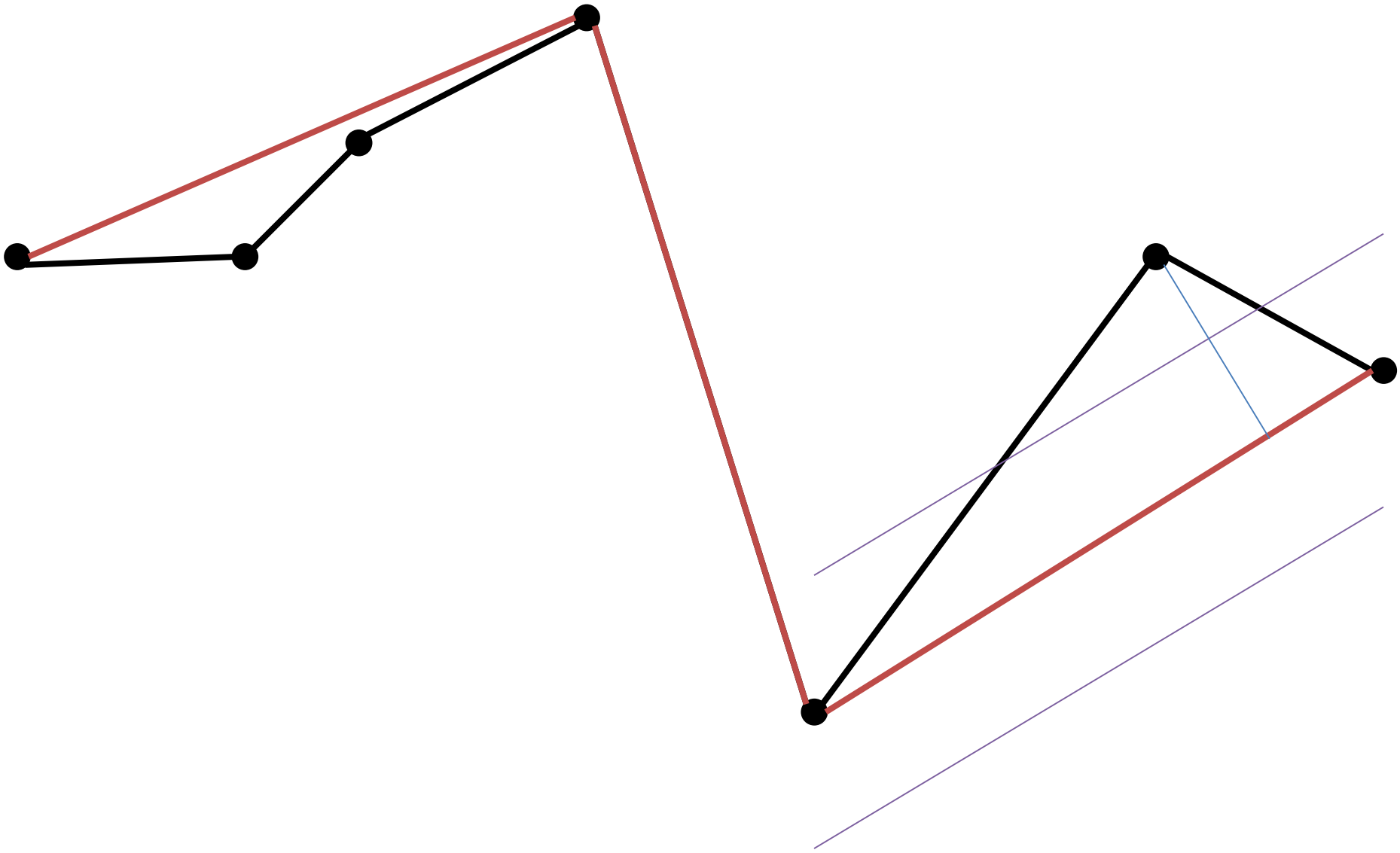
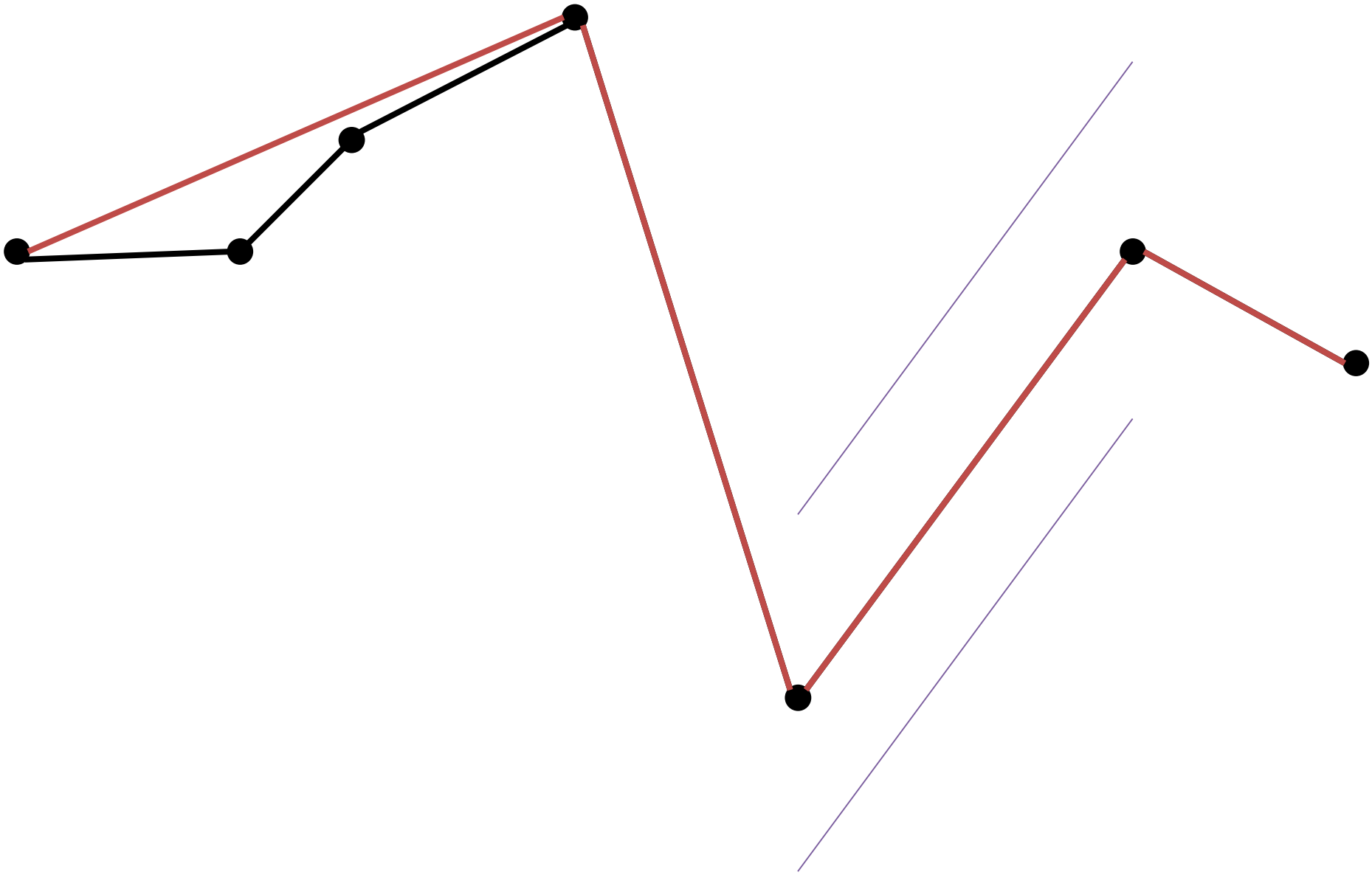
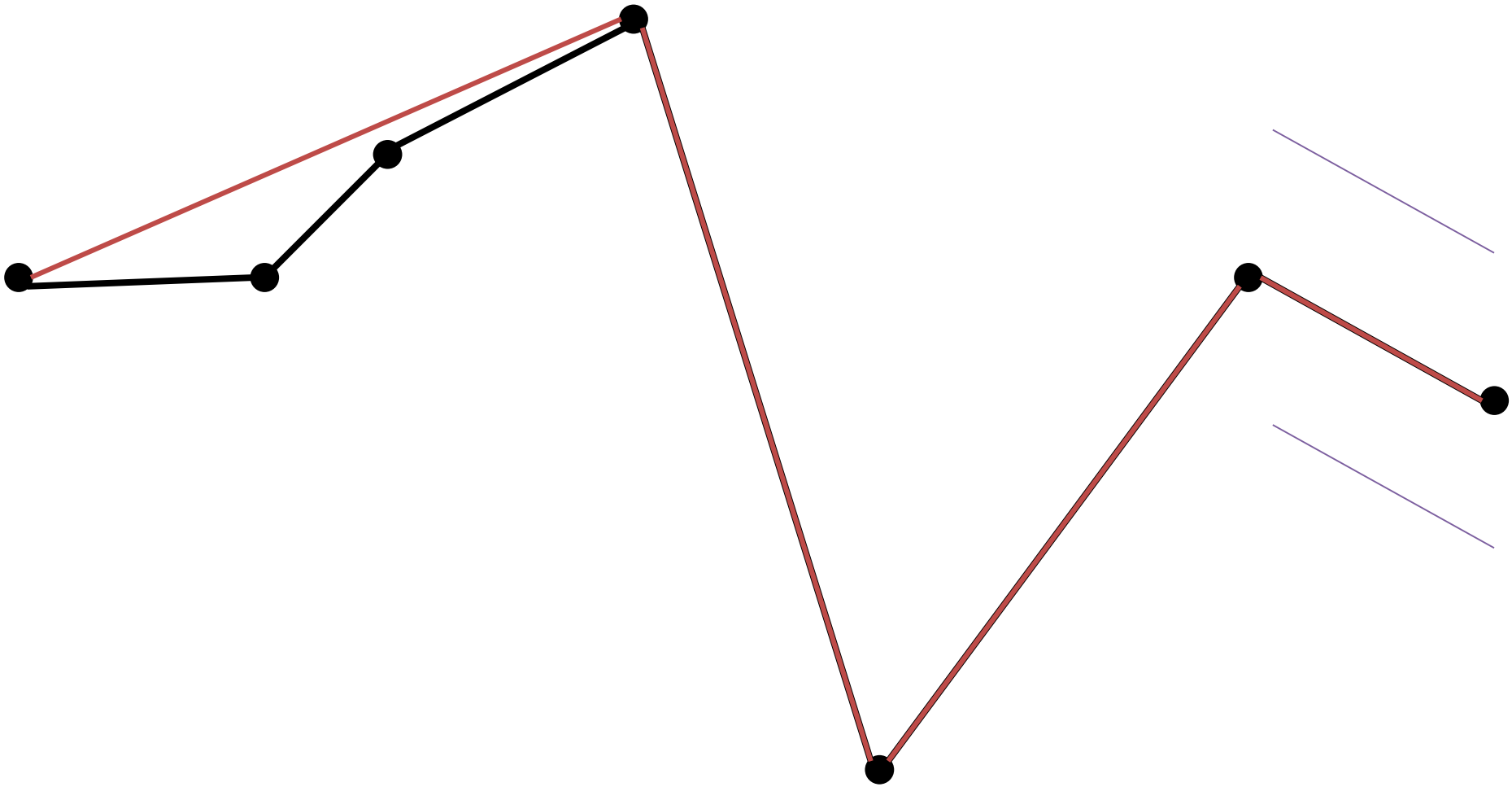


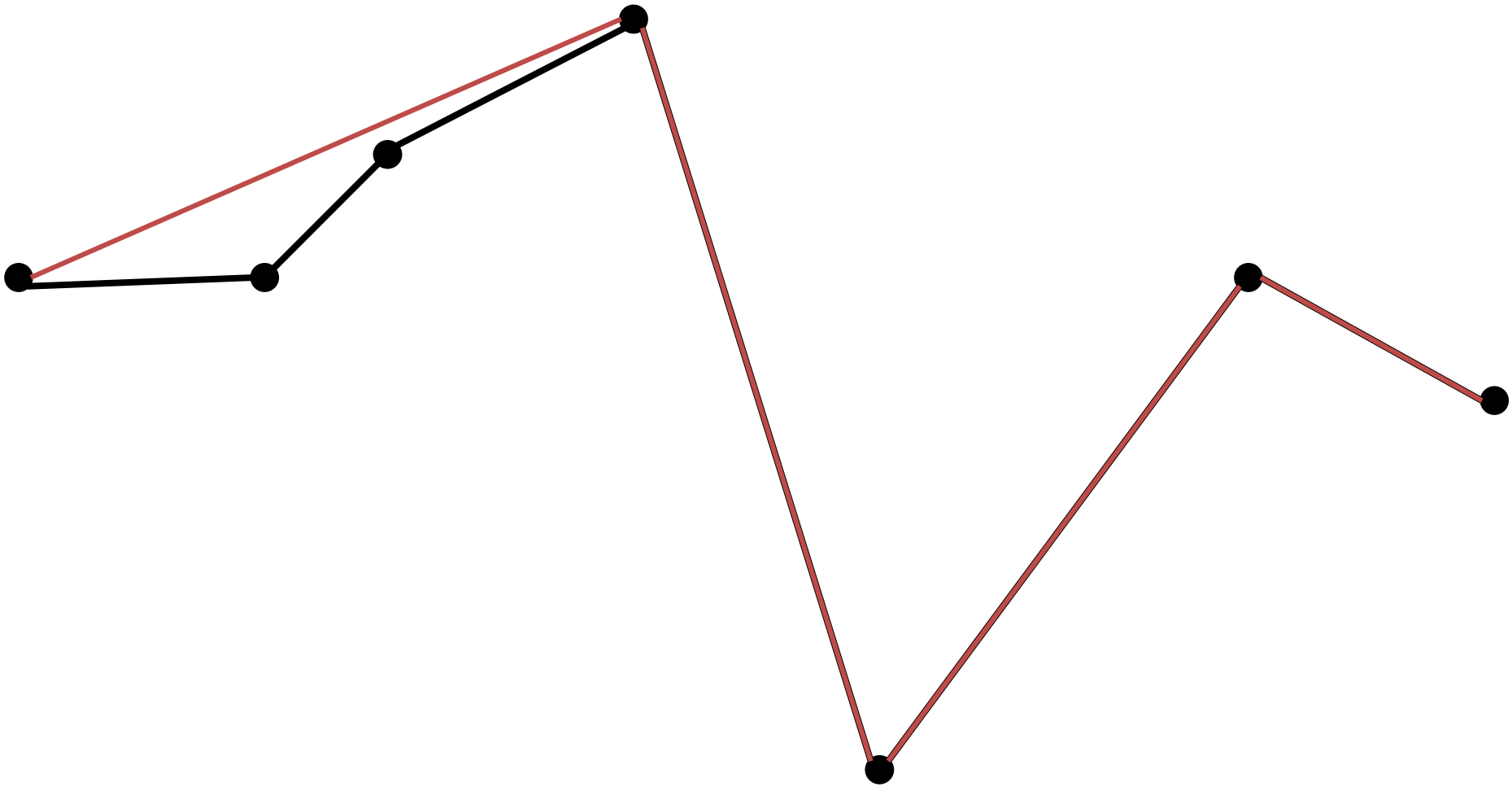
9-3 a)



9-3 a)



9-3 a) Result



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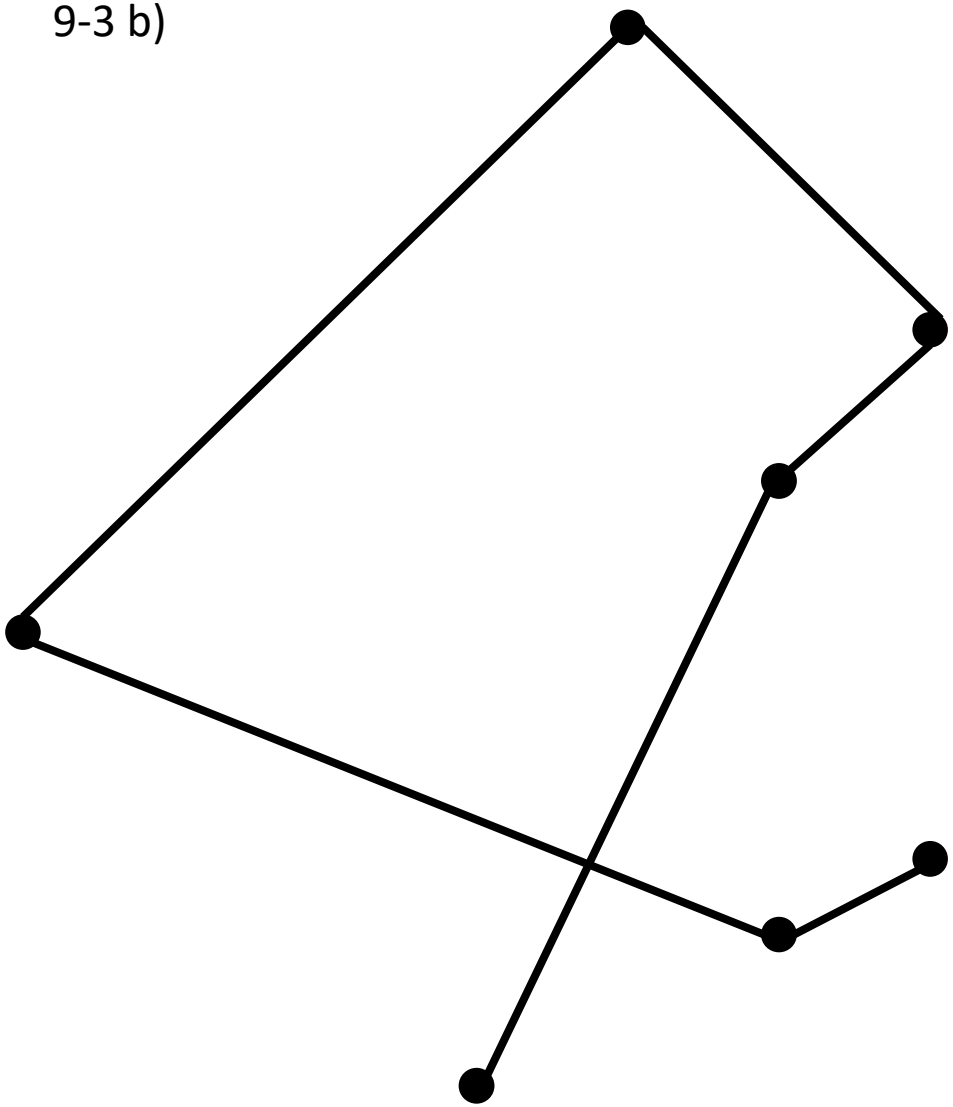

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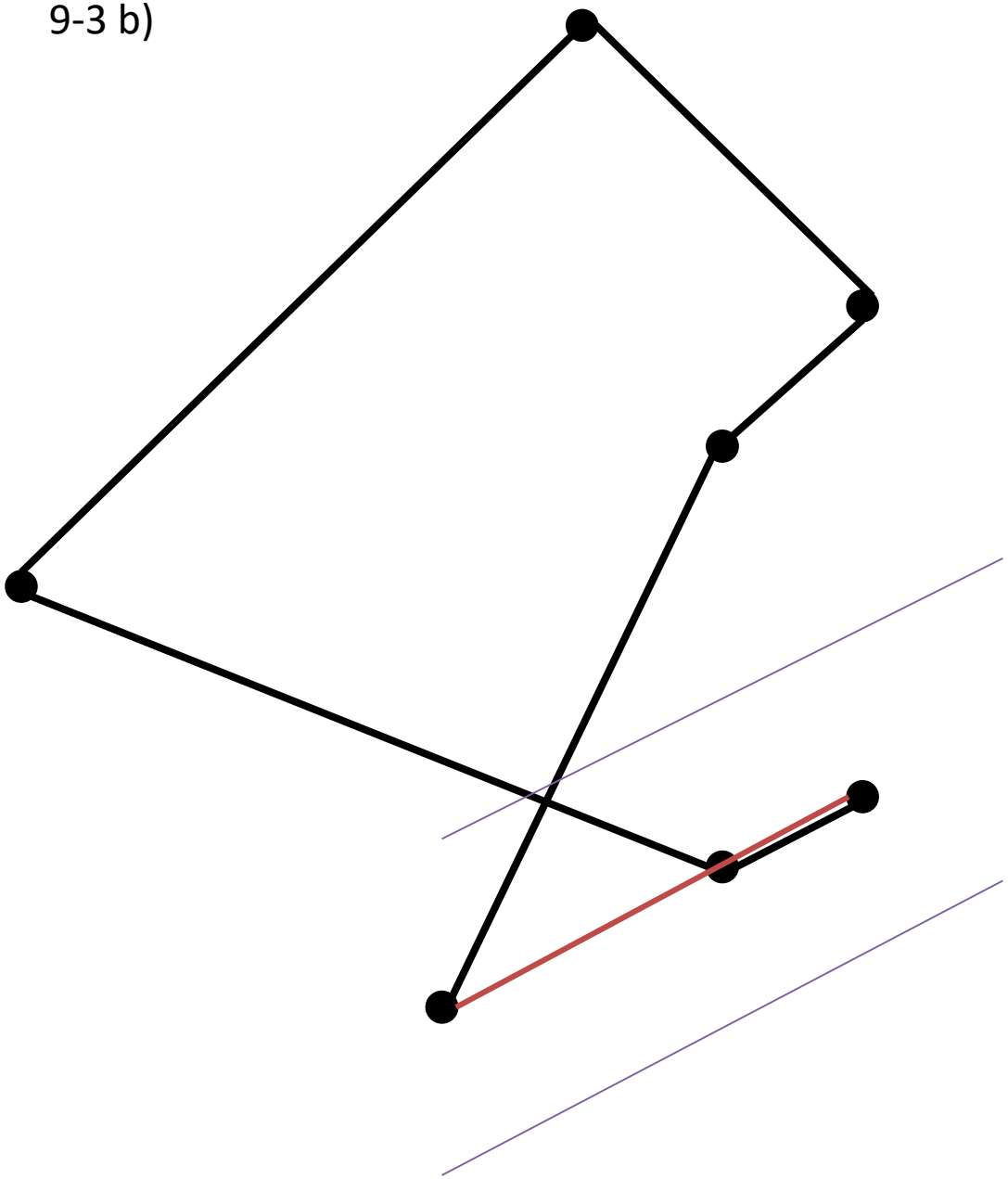

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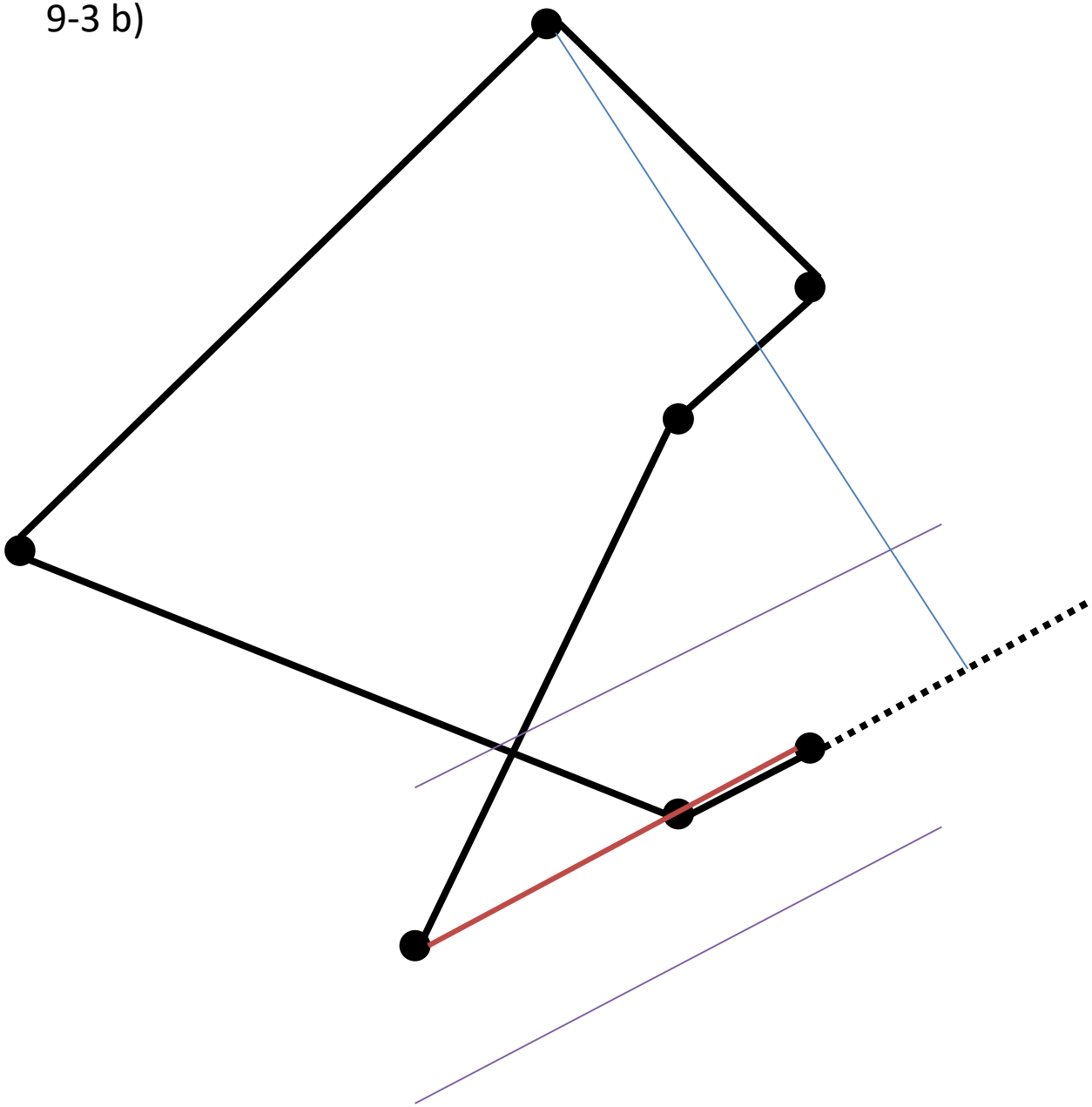

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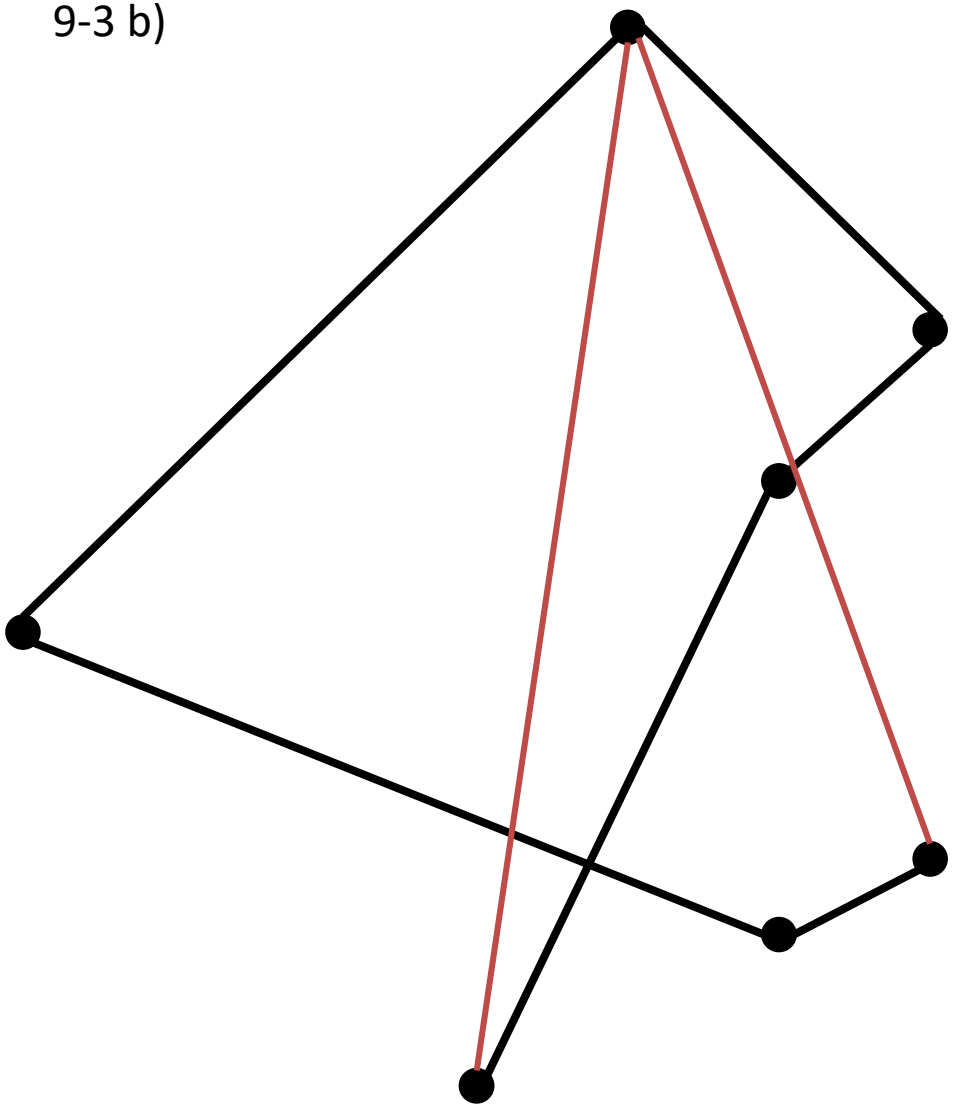

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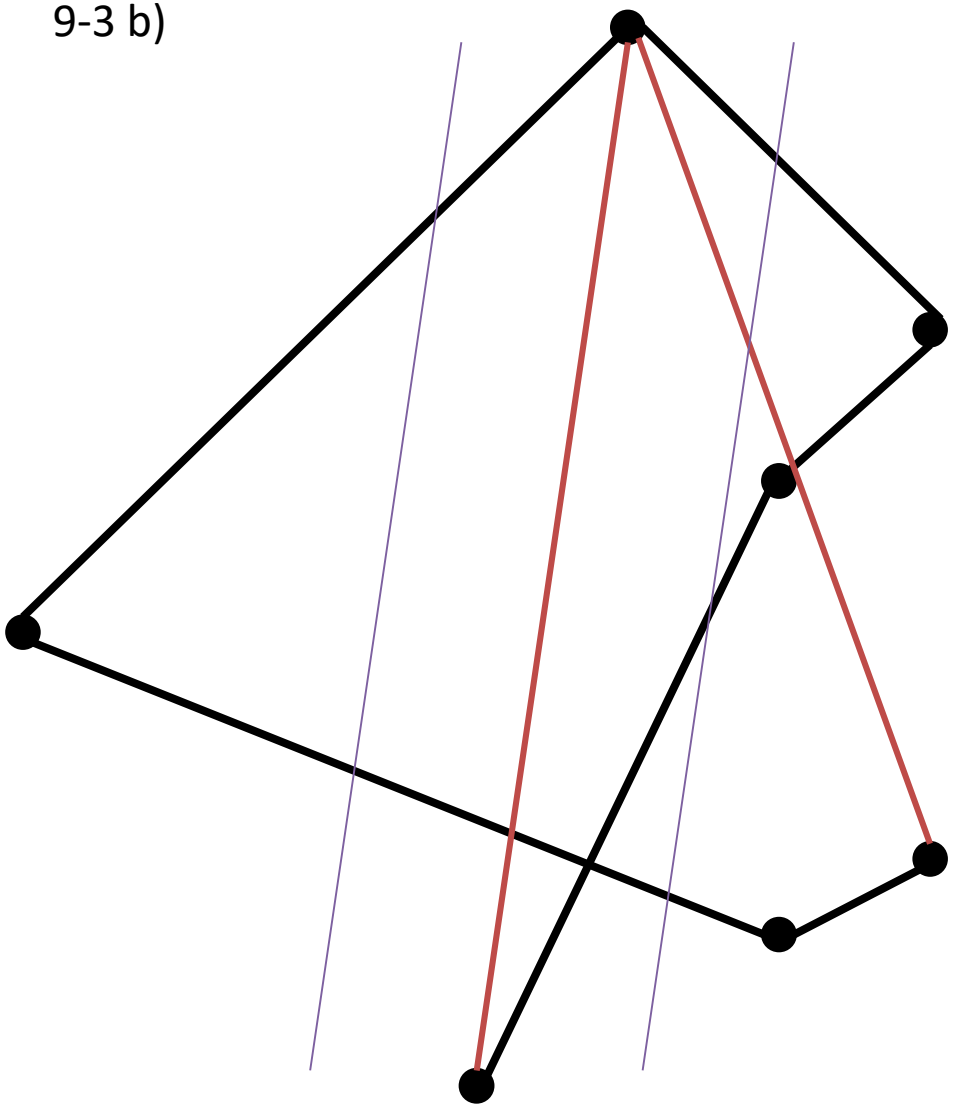

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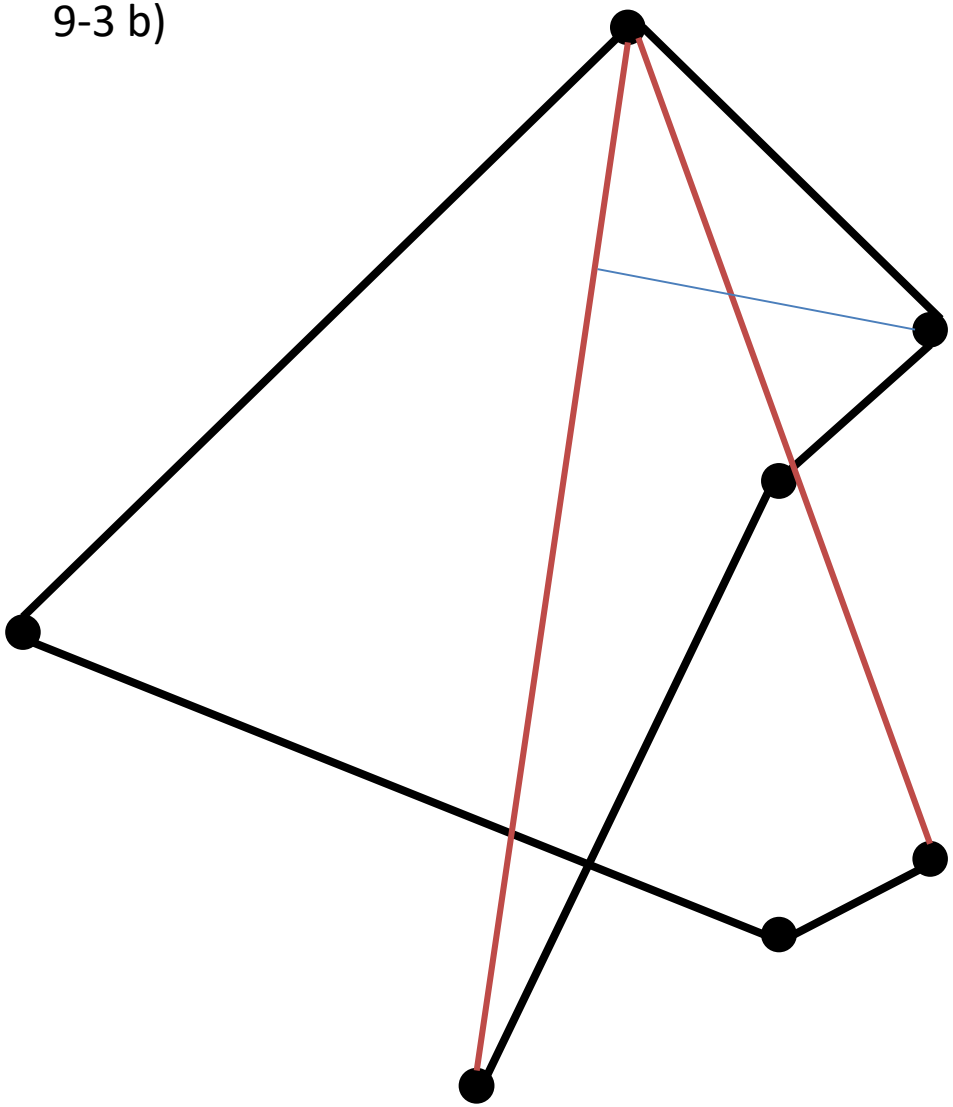

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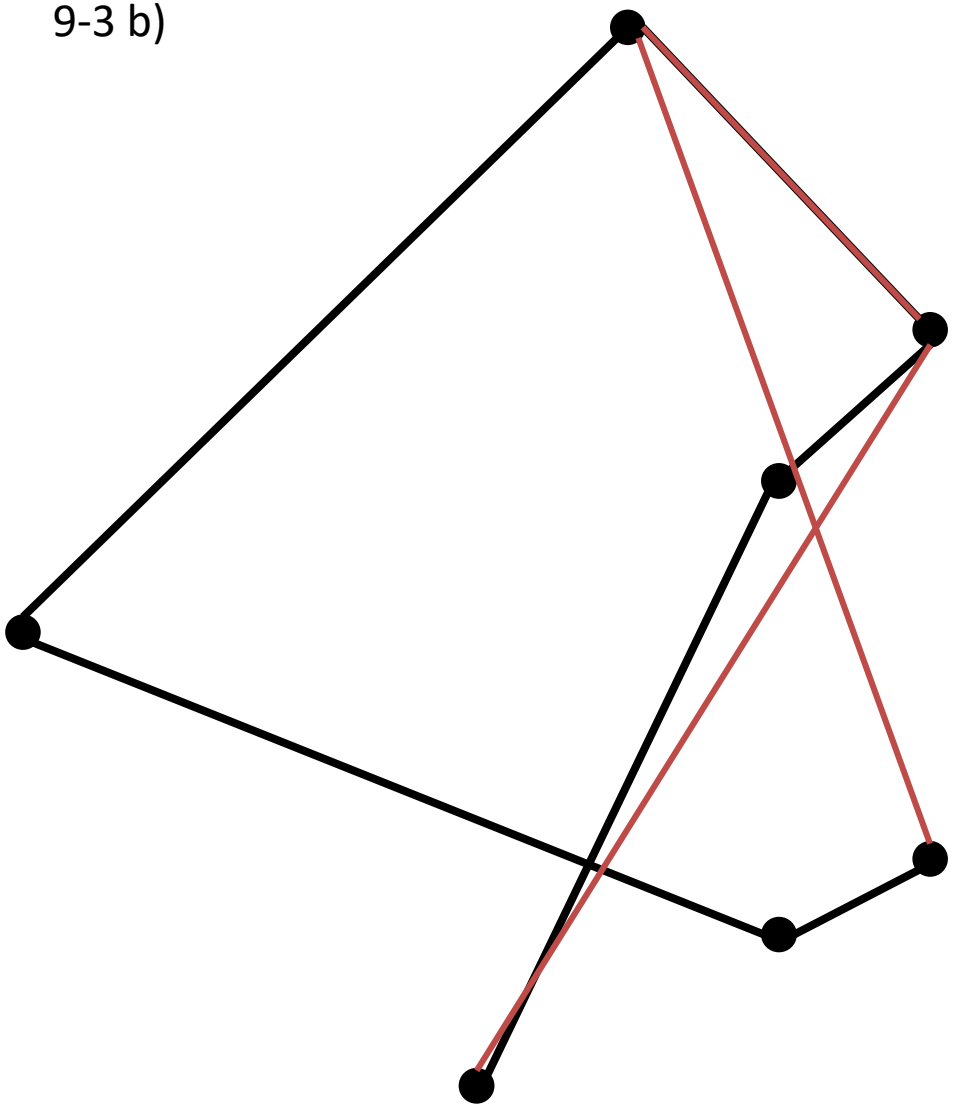

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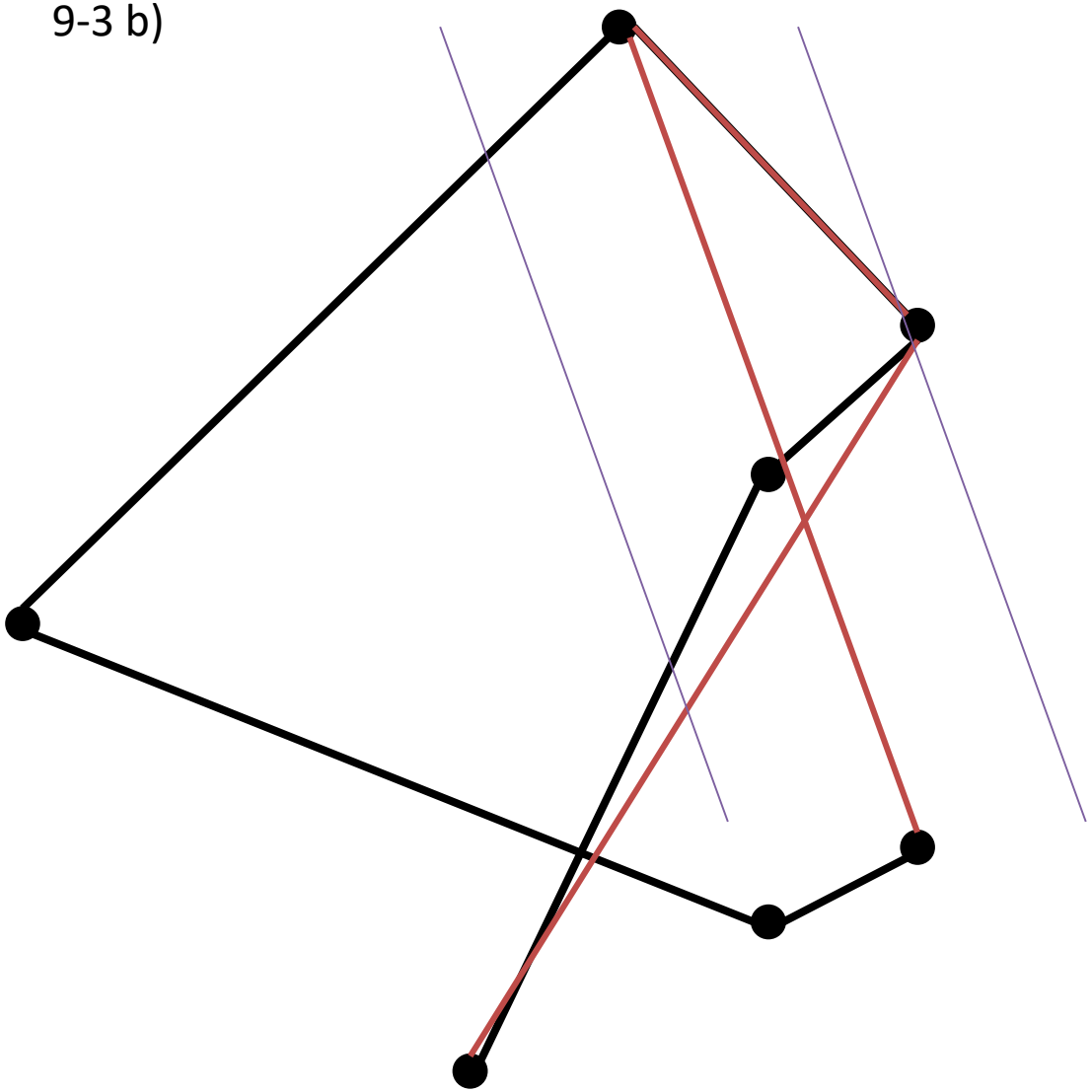

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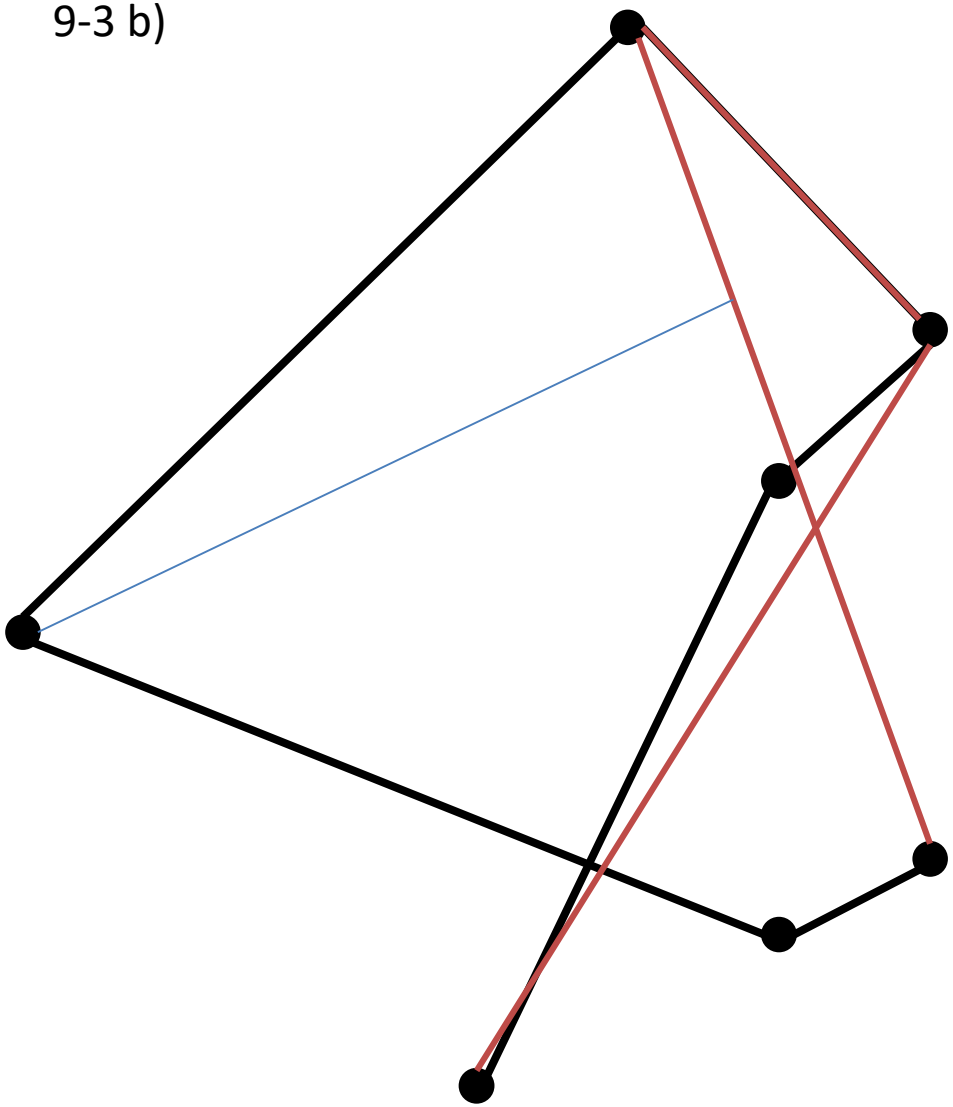
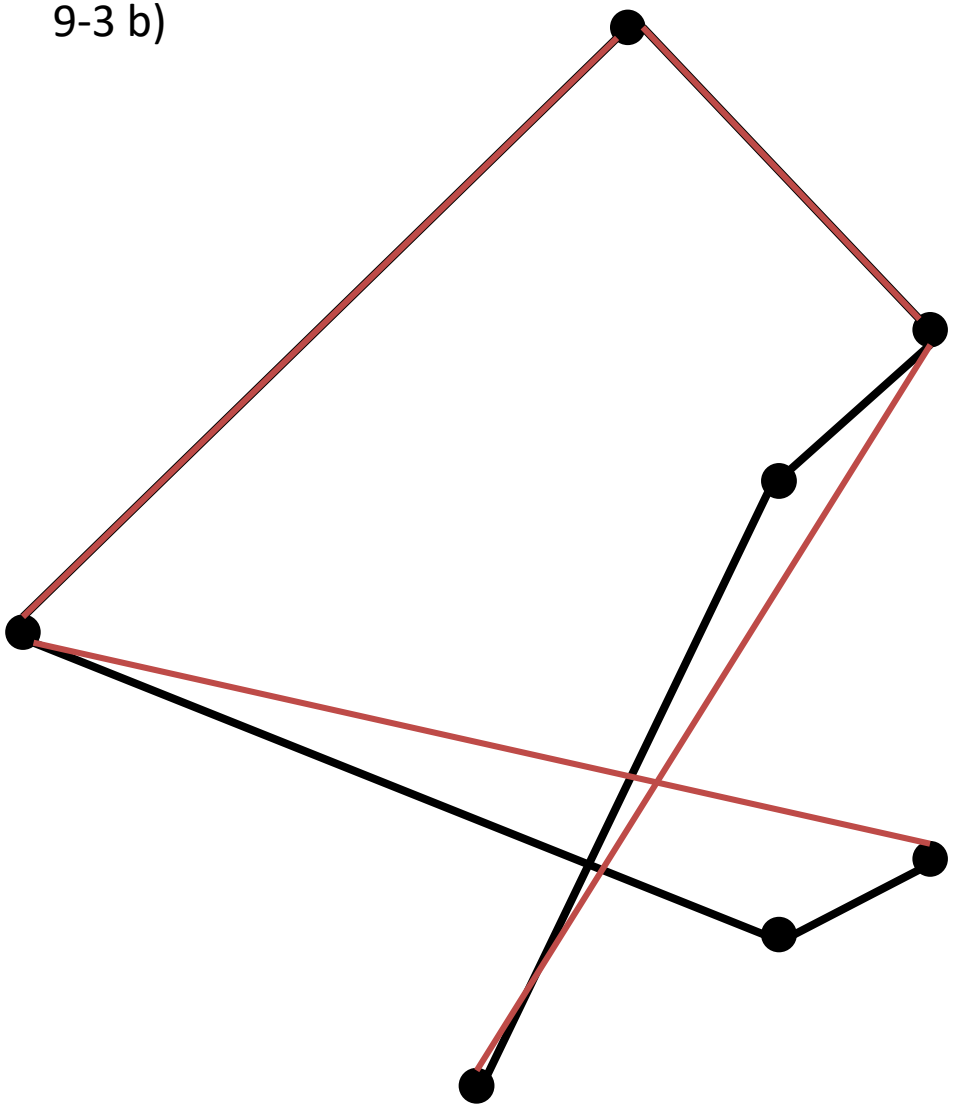


9-3 b)



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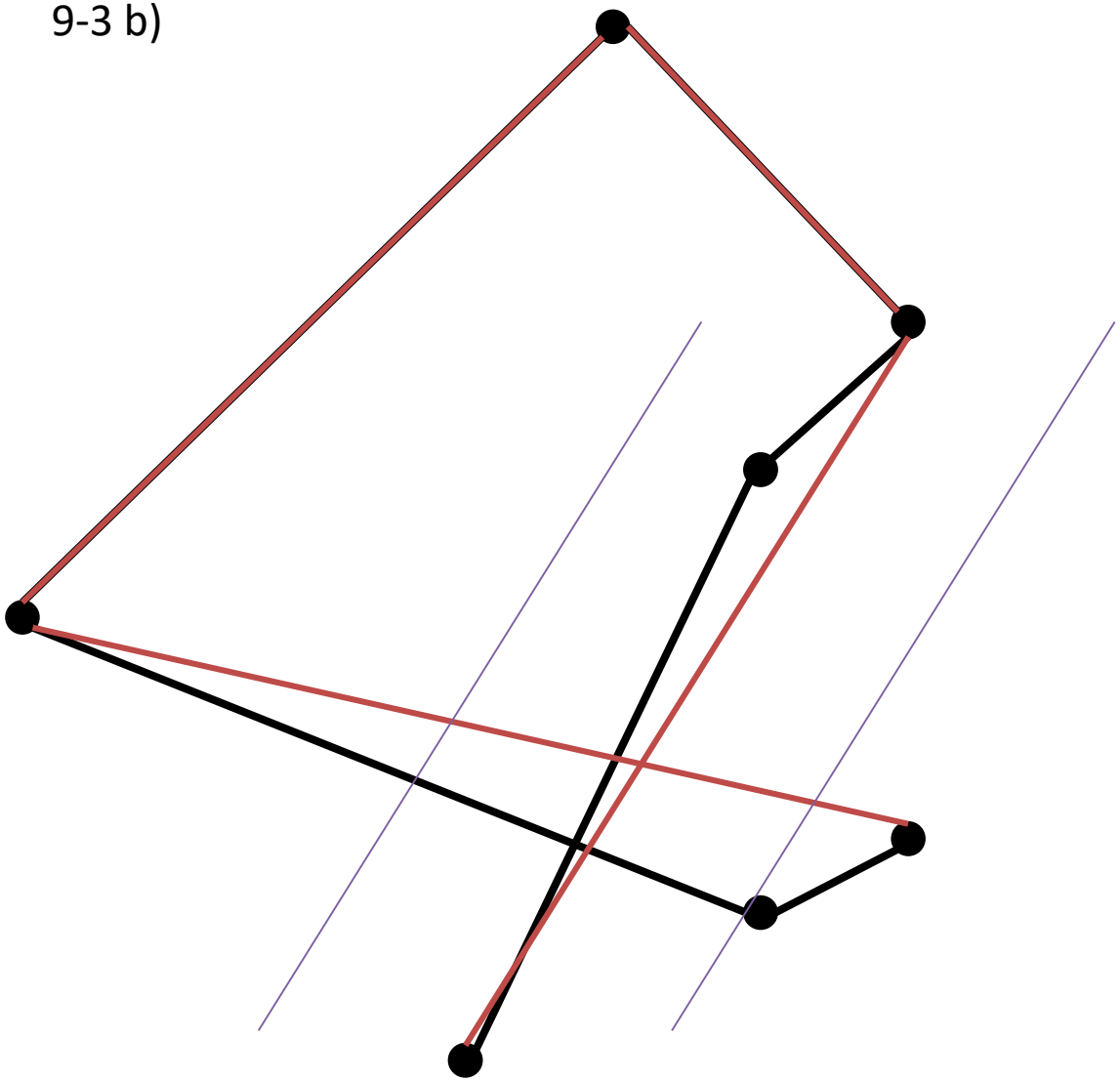
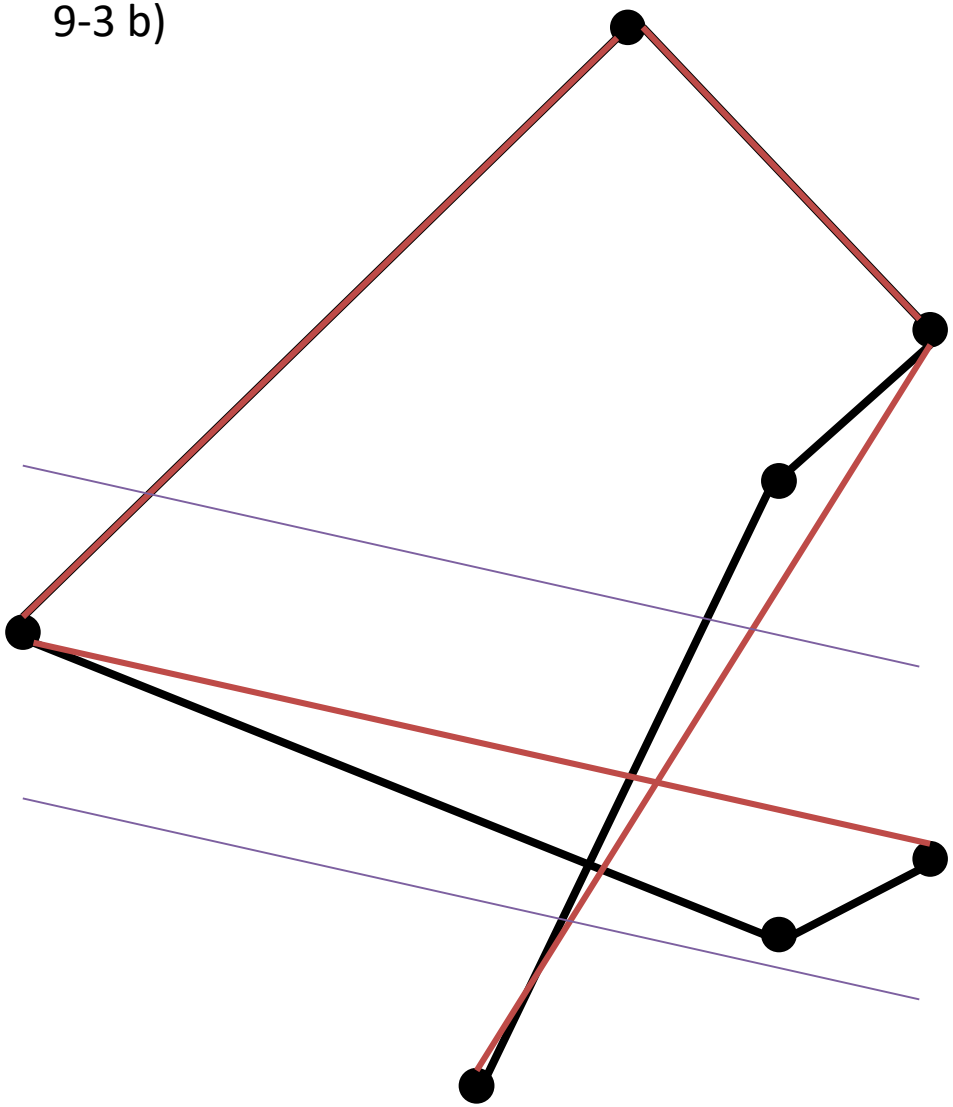


9-3 b)



9-3 b) Result