

Teaching seminar worksheet 1

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Q1. A *tetronimo* is a tile consisting of four squares of side length 1, glued along edges. There are seven different types of tetronimo. (Here we say two tetronimos have the same type if one can be obtained from the other by rotating in the plane of the tile. We don't allow flipping the tile over.)

- (a) Draw a picture of the seven different types of tetronimos.
- (b) Suppose you are given seven tetronimos, one of each type. Can they be used to tile a 4×7 rectangle?

Q2. A square piece of toast $ABCD$ is cut in half along the diagonal AC to form two equal triangular pieces ABC and CDA . Suppose we want to cut the triangle ABC into two parts of equal area by a single straight cut. How should we make the cut so that its length is as short as possible?