

Cube Slicing

The Big Cheese said “Let them eat carrots” and the veggies are now in full revolt. The veggies are putting cheese cubes in the guillotine (one at a time, but rather haphazardly). Swack! Now a cheese cube is cut in two and each part has a “fresh-cut” face.

Now read each of the following questions about the fresh-cut faces and try to figure out/visualize the answer.

After you have thought and tried to visualize the possibilities, describe your thoughts to a friend and try to convince them you are right.

Can the fresh cut face be

- (1) a square?
- (2) a rectangle? (that is not a square)
- (3) a triangle?
- (4) an equilateral triangle?
- (5) an acute triangle?
- (6) an obtuse triangle?
- (7) a right triangle?
- (8) a parallelogram? (that is not a rectangle)
- (9) a trapezoid? (that is not a parallelogram)
- (10) a non-convex quadrilateral?
- (11) a rhombus? (that is not a square)
- (12) a pentagon?
- (13) a regular pentagon?
- (14) a hexagon?
- (15) a regular hexagon?
- (16) a 7-gon?
- (17) a regular 7-gon?
- (18) a circle?
- (19) an octagon?
- (20) a regular octagon?

Now grab a cube and play with the questions. Are you going to change any of your answers? Finally write a list of all possible cube slices.