Cubes, Nets and Rectangular Boxes

1. Circle all the nets which can fold into a cube.

a)

c)

b)

d)

e)

g)
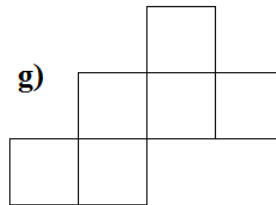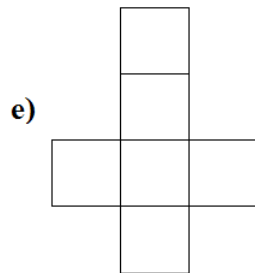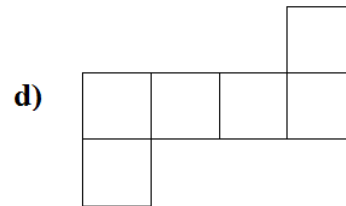
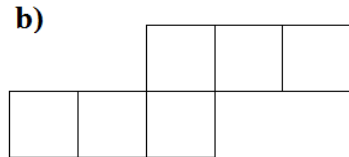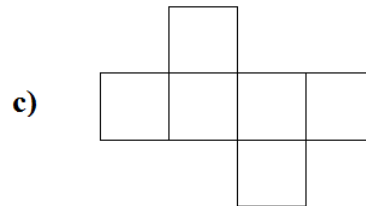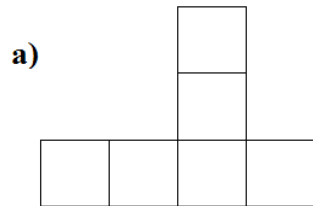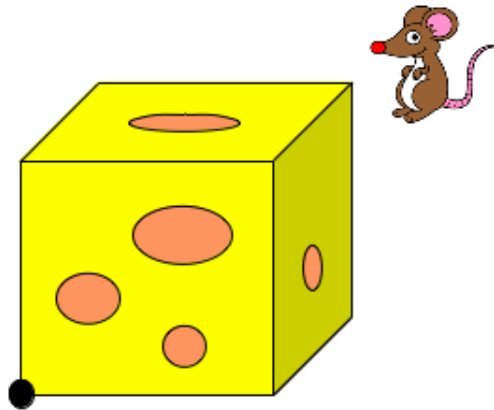2. Draw another net of the cube (which is not among those pictured above):

3. A mouse sits on a vertex of a cube made of tasty cheese. It wants to go to the opposite vertex. What is the fastest way? Is there more than one fastest way? Remember, mice can eat cheese!

4. A cube is made out of sticks glued together at the vertices. An ant sits at a vertex and wants to crawl to the opposite vertex to get some sugar. What is the fastest way? Is there more than one fastest way?
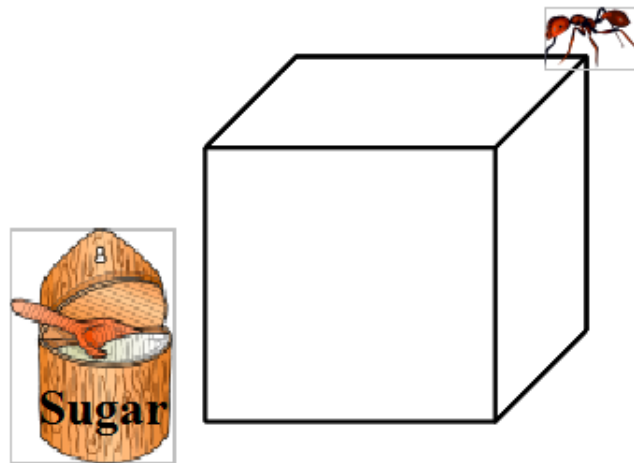

5. How many "quickest" ways are there to get to the sugar?

6. A spider and a fly are sitting on the opposite vertices of a solid wooden cube. Find (and draw) the shortest path from the spider to the fly on the face of the cube. Is there more than one path?
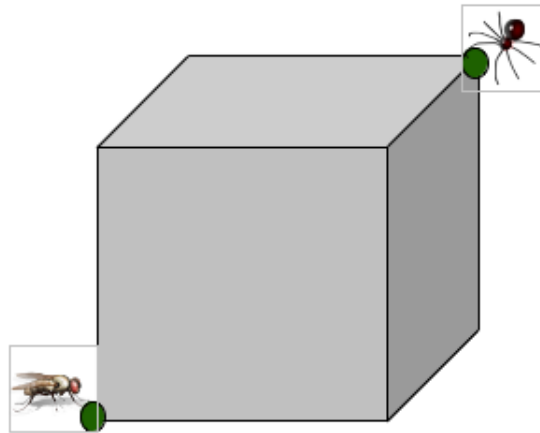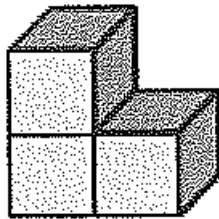

7. Find several more routes with the same length. How many did you find?

8. Below is a wrapper for a piece of candy shaped as a cube. Which of the three wrapped candies does our wrapper correspond to?
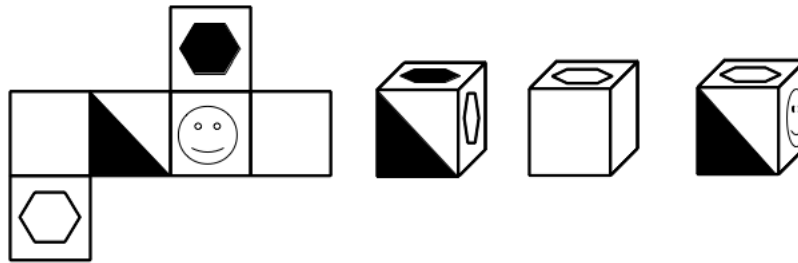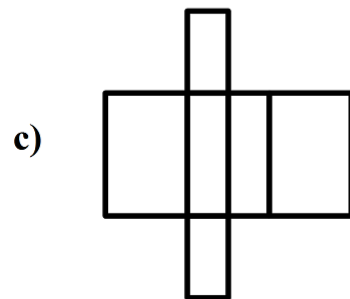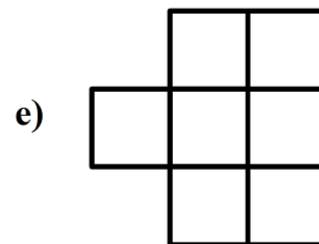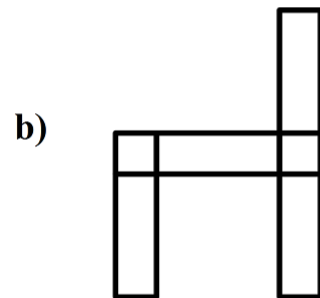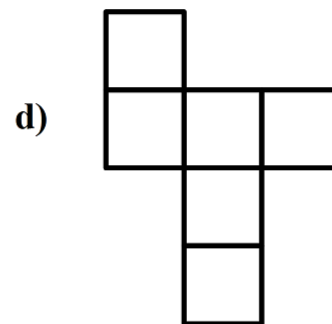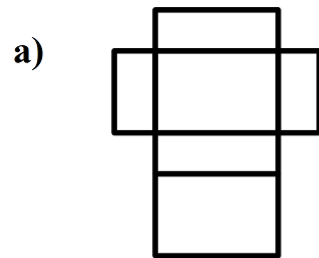

9. Travis glued 3 cubes together, as in the picture, and then he covered all of them with paint. How many squares did he paint?

10. Which of the following nets can be folded
to make a parallelepiped (rectangular box)?

a)

b)

c)

d)

e)
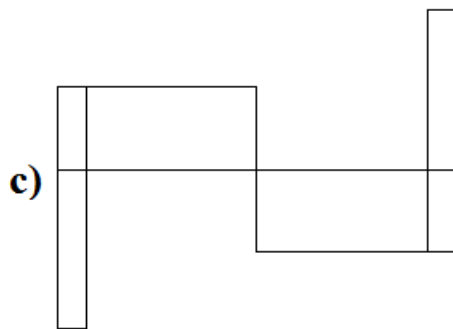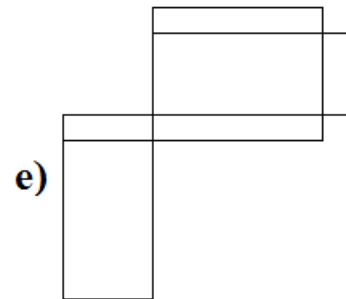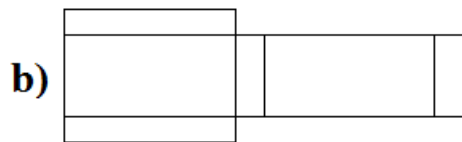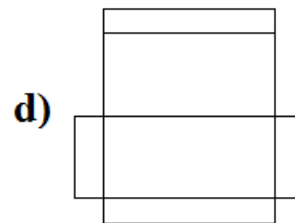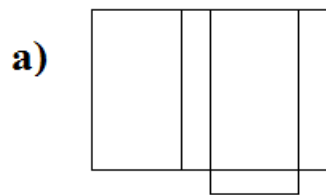
11. Which of the following nets can be folded into either rectangular or square boxes?

a)

d)

b)

c)

e)

12. Katja makes a large cube from 27 small white cubes. She paints all the faces of the large cube green. Then Katja removes a small cube from four corners, as shown below. While the paint is still wet, she stamps each of the new faces onto a piece of paper. Circle which of the following stamps can Katja make. (Clue: She can make more than one!)

a)   b)   c)   d)   e)