

SOML MEET 1
EVENT 2
Problem Solving

NAME: _____
TEAM: _____
SCHOOL: _____

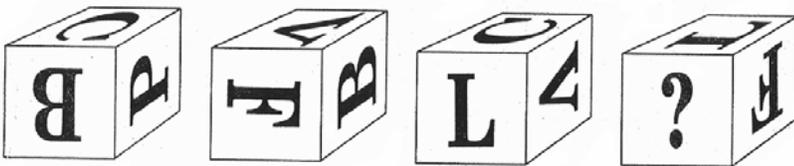
1. [2 Points] Mr. Sabo has a large supply of quarters, dimes, and nickels. How many ways can he give his daughter the equivalent of 50 cents?

ANS: _____

2. [3 Points] How many 9-inch square floor tiles are needed to cover a rectangular floor that is 9ft by 16 ft? (Floor tiles may be cut to minimize waste)

ANS: _____

3. [5 Points] Normal dice always have a dice arrangement: The dots on opposite faces always equal seven. But what if you were faced with a die that didn't have such a nice arrangement, but had, say... randomly oriented letters? As it happens, just such a die showed up the other day. Study the four different views of the un-nice die below, and draw what should appear on the face that has a question mark. Note: You must find not only the correct letter, but also its orientation (right-side up, sideways, upside-down).



ANS: _____

**SOML MEET 1
EVENT 2
Problem Solving**

NAME: KEY
TEAM: _____
SCHOOL: _____

1. [2 Points] Mr. Sabo has a large supply of quarters, dimes, and nickles. How many ways can he give his daughter the equivalent of 50 cents?

Solution:

Make a list of the possibilities — there are 10. See table below systematically listing the number of coins of each type that total 50 cents.

Quarters	Dimes	Nickles
2	0	0
1	0	5
1	1	3
1	2	1
0	5	0
0	4	2
0	3	4
0	2	6
0	1	8
0	0	10

ANS: 10 ways

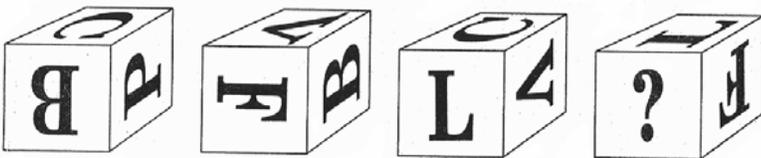
2. [3 Points] How many 9-inch square floor tiles are needed to cover a rectangular floor that is 9ft by 16 ft? (Floor tiles may be cut to minimize waste)

Solution:

It will take 12 tiles to total 108" or 9' across. To cover 16' (or 192") requires $21 \frac{1}{3}$ tiles. So 12x21 whole tiles are needed and 12 third's of a tile are needed, totaling $12 \times 21 + 4 = 256$ 9-inch tiles. - OR - $(9ft \times 16ft \times 12"/ft) / (9" \times 9")$

ANS: 256 tiles

3. [5 Points] Normal dice always have a dice arrangement: The dots on opposite faces always equal seven. But what if you were faced with a die that didn't have such a nice arrangement, but had, say... randomly oriented letters? As it happens, just such a die showed up the other day. Study the four different views of the un-nice die blow, and draw what should appear on the face that has a question mark.



Solution:

The missing letter is to the left of the "L." On the third picture, that would be the hidden face on the left, which is also the face above the "C." On the first picture, we can see the face above the "C" is a "P." But what is the orientation? The "P" faces the top of the "C." So on the third picture, the "P" must also be facing the top of the "C," which means the "P" on the hidden face is laying on it's stem and the bottom of the "P" is nearest the "L," that is, rotated 90 degrees counter-clockwise. So the question mark should be replaced with a "P" that is upside down, exactly the same orientation as the "F" on the right side.

ANS: P