Parent Involvement and Awareness:

A Few Good Problems to Do with Your Kids, for 4th–8th Grade Students

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A really good problem often makes you want to solve it. Here is a set of problems you might like to try with your family. Grab some scratch paper and pencils, and perhaps some beans to move around as counters, and sit down with your 4th to 8th grade student to try one or more of these. Focus on one problem of your choice at a time.

1. 32 people enter a ping-pong tournament. When a person loses a game, they are eliminated from the contest. How many games must be played to figure out who is the best ping-pong player?

2. If a state issues licence plates consisting of one digit, followed by three letters, followed by three digits, such as 1ABC123, how many licence plates can be issued?

3. At a fire, a fireman stood on the middle step of a ladder shooting water on the fire. As the smoke cleared, he went up three steps. A sudden burst of flames forced him to go down five steps. A few minutes later he climbed up seven steps and worked there until the fire was out. Then he climbed the seven remaining steps and entered the building. How many steps does the ladder have?

4. A farmer has 48 meters of fencing with which to build a corral for his cows. Since his property is bordered by a river, what is the biggest rectangular area he can fence in if he uses the river as one side of the corral?

5. At a party of 12 friends, the activities begin with each person shaking every other person's hand exactly once. How many handshakes take place?

6. Osgood smart glued together 125 small cubes to make one big solid cube. Then he painted all six sides of the big cube bright red! Later when he broke it down into small cubes again, he found that some cubes had three sides painted, some cubes had two sided painted, some cubes had one side painted, and some cubes had no paint on them at all. How many of each kind of cube did he have?

7. How many completely different shapes, not counting reflections or rotations, can you cut out of a 3" X 3" grid if you are only allowed to cut on the lines?

8. A 200 lb. man and his two daughters who each weigh 100 lbs. are standing on the bank of a river teaming with Pirahna. They want to get to the other side, but their canoe can hold no more than 200 lbs! How can they get across?

9. A giant hero sandwich has been created that is 30 feet long. It is to be divided into 4 parts so that each section is one foot longer than the previous section. What will be the lengths of the four pieces?

10. If you have chocolate, strawberry and vanilla ice cream, how many DIFFERENT double-dip cones can you make? Remember, some people like to eat their strawberry BEFORE they eat their chocolate ice cream, and some like it just the other way around!

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