

# Definitely Difficult BrainStarters

## Logic Activities to Jumpstart Your Day

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1. One morning, Diane decided to pick up a quick breakfast at her local bakery. When she walked in, she found the baker, Sam, looking very confused.

“Sam,” she said, “what seems to be the problem?” It seems that Sam had just broken his 1-quart jar and only had a 3-quart jar and a 5-quart jar left to measure liquids. Sam said, “I have to make cinnamon rolls with a recipe that calls for one quart of water and two quarts of milk, and I don’t know how I’m going to do that!”

“That’s easy,” said Diane.

**How did Diane solve Sam’s problem?**

2. Four friends had been playing a game of Monopoly® when a player’s cat ran in and pounced on the game board! Now everyone needed to figure out how much money he or she had before the game could be restarted. There had been \$1,000,000 between the four players. Before the game was interrupted, the first-place person had \$100,000 more than the second-place person. The second-place person had \$40,000 more than the third-place person, and the third-place person had \$140,000 more than the last place person.

**How much money did each player have before the game was interrupted by the cat?**

3. The principal at a nearby middle school decided to install a new flagpole in front of the school. The flagpole supplier told her that  $\frac{1}{9}$  of the pole must be embedded in concrete, the first 2 feet above the ground must be painted red, and the remaining  $\frac{5}{6}$  of the pole was to remain the natural color.

**What is the length of the new flagpole?**

**10.** A young man was traveling in Germany. He stopped to grab a quick dinner before heading out to see the local sights with some friends. After the meal, he called the waiter over and asked for the check. At this point, the young man realized he only had U.S. dollars in his wallet. He asked the waiter, "Can I pay this bill with American currency, and if so, how much will it be?", to which the waiter promptly responded, "Nine", and walked away. The young man took \$9 from his wallet, plus \$2 more for a tip, and got up to leave. He was about to leave when the waiter approached him looking very upset.

**Why was the waiter upset?**

**11.** Eliza and her mother decided to visit a friend in Winnipeg, Canada. They lived in Seattle, Washington, and thought it would be best to drive north into Canada and then head directly east to Winnipeg. Eliza knew that the speed limits around Seattle were 70 miles per hour, but she was very surprised to see that in Canada, the speed limits were posted at 90! A little hesitant to drive so quickly, Eliza set the cruise control at 75 miles per hour.

After about half an hour on the road in Canada, Eliza was surprised by the flashing lights of a police car wanting her to pull over. The police officer approached her vehicle, and Eliza explained that she thought the speed limit in that area was 90. He said that she was correct, but he gave her the ticket anyway.

**Why?**

**12.** You are standing in between two doors; one that opens to a room filled with toys and games and one that opens to a room filled with smelly socks. Two giant robots are guarding the doors to the rooms. One of these robots always lies and the other always tells the truth.

**If you can ask only one robot one question to find the room with toys and games, what should you ask?**

25. How can you cut a cake into eight pieces with only three straight cuts of a knife?



26. Jason's mother has told him that he must finish his homework before it is time for dinner. As the macaroni and cheese is being spooned on to the plates, Jason enters the kitchen and presents his mother with a piece of paper. Instead of the homework she had expected, Jason's mom sees that it is a detailed outline of Jason's schedule. Jason explains that because of everything else he must do, there is no way that he has enough time to do his homework. He has broken down all of his daily activities into the total number of days per year he spends doing them:

*School (7 hours/day) = 53 days/year*

*Basketball practice = 17 days/year*

*Summer break = 90 days/year*

*Sleeping (8 hours/day) = 122 days/year*

*Meals = 46 days/year*

*Chores = 22 days/year*

When added together, this equals 350 days out of the year. That only leaves 15 days for doctor appointments, babysitting his sister, walking the dog – even taking a shower! Jason claims that this list shows there is no way he has time to do his homework.

After reading the list, Jason's mom smiles and says, "Nice try, but your trickery won't work on me!" **What was wrong with Jason's explanation?**

27. The candy store in the mall sells a package of bubble gum for a less than a dollar. Louis and Michelle go to the store for the gum, and begin to pull out their change. As they count their money, both kids realize that they don't have enough: Louis is short by 76 cents and Michelle is short by a nickel. They decided to combine their money to buy the gum, but they still don't have enough!

**How much did the package of bubble gum cost?**

