

Working Backwards practice problems.

1. Losing Streak

A man competing on a game show ran into a losing streak. First he bet half of his money on one question, and lost it. Then he lost half of his remaining money on another question. Then he lost \$300 on another question. Then he lost half of his remaining money on another question. Finally he got a question right and won \$200. At this point, the show ended and he had \$1200 left. How much did he have before his losing streak began?

2. Generosity

Phil Anthropist likes to give away money. One day he was feeling especially generous, so he went to the park with a wad of money. He gave \$100 to a man feeding pigeons. He then gave half of his remaining money to a child licking an ice cream cone. He then gave \$50 to the balloon seller. He then bought a hot dog, and paid for it with a \$20 bill. "Keep the extra for a tip," he said to the hot-dog seller. Then he gave half of his remaining money to someone giving a sermon on a soapbox. At this point, he had \$3 left and stuck it under the collar of a stray cat. How much money did Phil have when he started his good deeds?

4. The Mall

My sister loves to go shopping. Yesterday she borrowed a wad of money from Mom and went to the mall. She began her excursion by spending \$18 on a new compact disc. Then she spent half of her remaining money on a new dress. Then she spent \$11 taking herself and her friend out to lunch. Then she spent one-third of her remaining money on a book. On her way home she bought gas for \$12 and spent one-fourth of her remaining money on a discount tape at the convenience store. Finally, she slipped me \$2 when she got home, and gave Mom back \$10 in change. Mom was furious and demanded an explanation of where the money went. What did Sis tell her? (List the items and amount spent on each item.)

6. Hockey cards

Jack and Jill were admiring each other's hockey cards. Jack had quite a few cards, and Jill had some of her own. Jack was trying to impress her, so Jack gave Jill as many hockey cards as she already had. Jill then gave Jack back as many cards as he had left. Jack, not to be outdone by Jill's generosity, gave her back as many cards as she had left. This left poor Jack with no cards and left Jill with 40 cards altogether. How many hockey cards did each of them have just before these exchanges took place? (You might want to try acting this out in conjunction with working backwards.)

7. Donuts

Four customers came into a bakery called Totally Excellent Donuts. The first one said, "Give me half of all the donuts you have left, plus half a donut more." The second customer said, "Give me half of all the donuts you have left, plus half a donut more." The third customer said, "Give me three donuts." The last customer said, "Give me half of all the donuts you have left, plus half a donut more." This last transaction emptied the display case of donuts. How many donuts were there to start with?