

Problem Solved: Algebra for All Students

NCTM Annual Meeting

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“Solving problems is not only a goal of mathematics but also a major means of doing so.”

Principles and Standards
for School Mathematics
NCTM, 2000

NCTM Problem Solving Standard

- Build new mathematical knowledge through problem solving;
- Solve problems that arise in mathematics and in other contexts;
- Apply and adapt a variety of appropriate strategies to solve problems;
- Monitor and reflect on the process of mathematical problem solving.

Fresh eggs

In a small country store, a basket of fresh eggs sits on the counter. A woman tells the clerk, “I’d like half the eggs in the basket plus half an egg, please.” He fills her order. The following day, the woman returns. “I’d like half the eggs in the basket plus half an egg, please.” Again, he fills her order. The next day, the woman returns once more. “I’d like half the eggs in the basket plus half an egg, please.” The clerk fills her order, and the basket is now empty. How many eggs were in the basket to start?

Ask Marilyn

November 7, 2004

An equation

$$x - \frac{1}{2}x - \frac{1}{2} - \frac{1}{2} \left(x - \frac{1}{2}x - \frac{1}{2} \right) - \frac{1}{2}$$

$$-\frac{1}{2} \left[x - \frac{1}{2}x - \frac{1}{2} - \frac{1}{2} \left(x - \frac{1}{2}x - \frac{1}{2} \right) - \frac{1}{2} \right] - \frac{1}{2} = 0$$

Sweet Deals

You are a new employee at a candy store. The owner has priced some of her confections like so: ice cream, 32 cents; lollipop, 34 cents; licorice, 32 cents; jawbreaker, 42 cents; gum, 13 cents; and chocolate. She forgot to price the chocolate, so you must add the price yourself. How much does it cost?

Ask Marilyn

March 20, 2005

Comic Book Store

Charmaign has \$6.00 she wants to spend on comic books and superhero cards. Comic books cost 60 cents each and deluxe packages cost \$1.20 each. List all of the ways Charmaign can spend all of her money on comic books and/or superhero cards.

Down on the farm

Farmer Jones raises ducks and cows. She tries not to clutter her mind with too many details, but she does think it's important to remember how many animals she has, and how many feet those animals have. She thinks she remembers having 54 animals with 122 feet. How many of each type of animal does Farmer Jones have?

Speed demon

At 60 mph, it takes 60 seconds to travel a mile.
At 120 mph, it takes 30 seconds. At what speed
would it take 45 seconds?