Warm-Up!

Try these problems before watching the lesson.

1. Expand the product $(x + 1)(y + 1)$.

2. If x is 3 more than y, and y is 5 less than z, then what is $z - x$?

3. A certain number n is tripled and then increased by five. The result is doubled and decreased by 4. If the final result is 36, what is the value of n?

4. Five friends went to a restaurant and agreed to share the bill equally. However, one person forgot his wallet, so the other four friends' portions of the bill went up by $4 each. How many dollars was the total bill?

The Problems

First Problem: Steph is playing basketball with his brother. He scores 29 points on 12 successful baskets. Each basket was worth either 2 or 3 points. How many baskets worth 3 points did Steph make?

Second Problem: Ivory writes down three two-digit numbers, each with units digit 7. The tens digit of the product of these three numbers is 5. What is the tens digit of the sum of the three numbers?

Follow-up Problems

5. At the school fair, MATHCOUNTS parents sold chocolate and vanilla ice cream as a fund-raiser. Forty bowls of chocolate ice cream were sold for $2.15 per bowl. Bowls of vanilla ice cream sold for $1.90 each. How many bowls of ice cream were sold if the total amount of money collected was $158.20?

6. Kevin, Cindi, and Marcus have a total of 1020 widgets. Marcus has half the number of widgets that Cindi has. Kevin has 219 widgets. How many widgets does Cindi have?

7. A rectangle has area 108 square inches and perimeter 42 inches. If the length and the width are both increased by 1 inch, then what is the area of the resulting rectangle?

8. Douglas writes down his favorite number, which is a two-digit positive integer. He then turns the number into a three-digit number by writing a 7 at the end of his favorite number. This new number is 385 more than Douglas's favorite number. What is Douglas's favorite number?

Wow! Share Your Thoughts

Have some thoughts about the video? Want to discuss the problems on the Activity Sheet? Visit the MATHCOUNTS Facebook page or the Art of Problem Solving Online Community (www.artofproblemsolving.com).