EXPLORATION 9

ACTING CLEVERLY

Clever ways to avoid ghastly work! And clever ways to amaze your friends!

TOPICS COVERED: Grouping and factoring. Estimation. Mathematical party tricks.

A. GETTING STARTED

Mathematicians will work hard to avoid doing work! There is a (partly serious) joke amongst college professors that if you walk past a mathematician's office and see her at her desk writing on paper, then she is not really working. But if instead you see her with her feet up on the desk leaning back staring at the ceiling, then she is working hard!

The message here is that mathematicians will think long and hard before diving into a problem, mull on its challenge and look for a deeper way to see what is really being asked so as to avoid unnecessarily being bogged down with lengthy computation.

For example, consider the challenge of computing:

$$18 \cdot 7 + 18 \cdot 3$$

One might be tempted to first work out 18×7 and then 18×3 and then adding the results. But there is a much easier way to see that the answer has to be 180. Do you see how?

Question 1: Can you spot an easy way to compute each of the following?

a) $23(4) + 23(6)$ (This is another way of writing $23 \cdot 4 + 23 \cdot 6$)

b) $102 \times 8 + 102 \times 2$

c) $64 \cdot 17 + 36 \cdot 17$

d) $450(212) + 550(212)$

e) $13 \cdot 17 - 13 \cdot 7$

DOWNLOAD THIS EXPLORATION FOR MORE!