

Pene's Puzzles

You need a calculator

a classmate

Susanne, Jason, and Mark liked to visit their friend Pene the Piwakawaka. If they could find a pattern in the equations she gave them, she would tell them a story.

Activity One

Look at these equations that Pene gave Susanne, Jason, and Mark:

a. $1 \div 1 = 1$	b. $1 \times 1 = 1$	c. $2 \times 1 + 1 = 3$
$2 \div 2 = 1$	$2 \times 2 = 4$	$3 \times 1 + 1 = 4$
$3 \div 3 = 1$	$3 \times 3 = 9$	$4 \times 1 + 1 = 5$
$4 \div 4 = 1$	$4 \times 4 = 16$	$5 \times 1 + 1 = 6$



1. Write in your book the next equation for each pattern.
2. Write in your book the tenth equation for each pattern.
3. Make up some patterns for a classmate to solve.

Activity Two

1. The three friends visited Pene again the following Monday.


Before telling them a story, Pene asked them to think of a number, multiply this number by two, and add six to the answer.

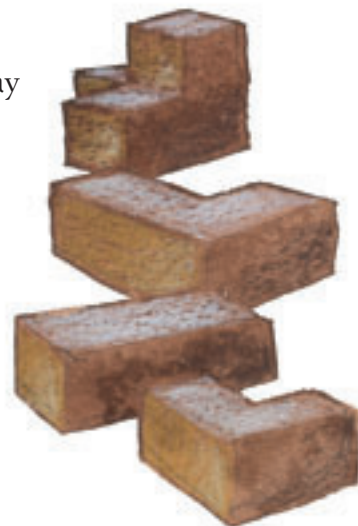
Then she told them to divide this new number by two and take away the number they had first thought of.

“I know the answer,” Mark said. “It’s three.”

Susanne had started with five and Jason had started with two.

- Was Mark correct?
- Can you tell Susanne and Jason how Mark knew the answer?


$$(\square \times 2 + 6) \div 2 - \square = 3$$



2. When the friends visited Pene on Tuesday, she gave them another puzzle.

“Think of a number,” Pene said. “Double the number and take away seven. Now add 21, divide by two, and subtract the number you first thought of.”

“This time, I know the answer!” said Susanne. “It’s seven.”

- Was Susanne right?
- Can you explain why you think this?



3. “Now it’s your turn,” Pene said.

- Make up a number puzzle for Susanne, Jason, and Mark to give to Pene.
- Give your puzzle to a classmate to work out. Make sure you can explain your answer to them.