



# how many outfits?

## ARITHMETIC TASK

If you have 2 shirts and 3 pants, how many different outfits can you make?

How did you get your answer? Try to show your solution on paper.

## EXTENSION TO ALGEBRAIC THINKING

How many outfits will there be if you have 3 shirts (and 3 pants)?

What if you have 4 shirts (and 3 pants)? What if you have 5 shirts (and 3 pants)?

Organize your data in a table. Do you see a pattern? Describe the relationship in words or symbols. How do you know it works?

Based on your pattern, predict how many outfits there will be if you have 20 shirts (and 3 pants)?

**Generalization:** What can you say about the relationship between the number of outfits with the number of pants and shirts?

**Teacher Challenge:** What will be the number of outfits if you have 'n' shirts?

### For teachers to think about...

Why is this task algebraic?

How might your students solve this problem?

What would be their challenges?

What strategies did students use?

What generalizations did they make?

How did they justify their thinking?

How did they model the problem?



## VARIATIONS ON 'HOW MANY OUTFITS?'

1. Repeat the given problem by varying the number of pants (and keeping the number of shirts fixed).

2. What number of pants and shirts will give you 3 outfits?

Is there another way this could happen? Find them all. How do you know you have them all?

What number of pants and shirts will give you 4 outfits?

What number of pants and shirts will give you 6 outfits?

Organize your data in a table. Do you see a pattern?

What can you say about how the number of pants and shirts relates to the number of outfits?



3. Which numbers of outfits have exactly 2 numbers of pants and shirts combined?

Three numbers of pants and shirts combined?

Four numbers of pants and shirts combined?

Organize your data in a table. Do you see a pattern? Describe it in words or symbols. How do you know this pattern works?