Multiplication Strategies (page 1 of 3)

In Grade 5, you are learning how to solve multiplication problems efficiently.

There are 38 rows in an auditorium, and 26 chairs in each row.
How many people can sit in the auditorium?

Breaking the Numbers Apart

Georgia solved the problem 38 × 26 by breaking apart both factors.

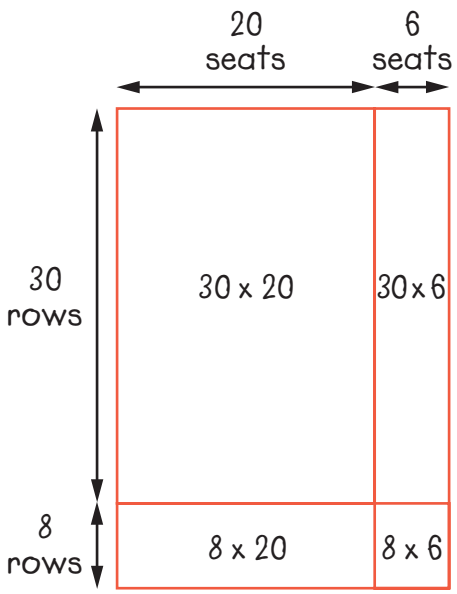
Georgia's solution

First I'll figure out how many people are in the first 30 rows.

30 x 20 = 600	*That's the first 30 rows, with 20 people in each row.*
30 x 6 = 180	*That's 6 more people in each of those 30 rows, so now I've filled up 30 rows.*

There are 8 more rows to fill.

8 x 20 = 160	*That's 20 people in those last 8 rows.*
8 x 6 = 48	*I've filled up the last 8 rows with 6 more people in each row.*



Now I add together all the parts I figured out to get the answer.

600 + 180 + 160 + 48 = **988**

988 people can sit in the auditorium.

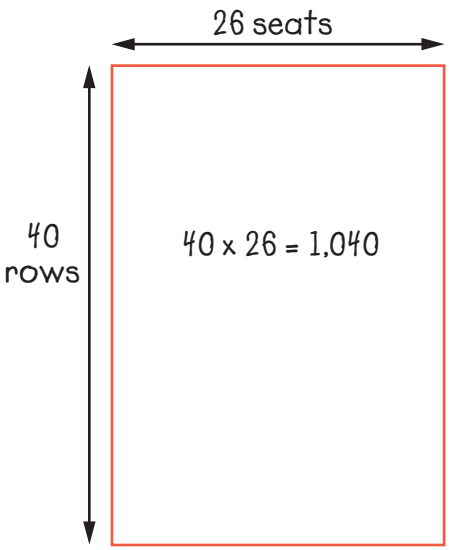
Solve 14 × 24 by using this first step: 14 × 20 = ___?___

Multiplication Strategies (page 2 of 3)

There are 38 rows in the auditorium, and 26 chairs in each row.
How many people can sit in the auditorium?

Changing One Number to Make an Easier Problem

Benson solved the auditorium problem, 38 × 26, by changing the 38 to 40 to make an easier problem.



Benson's solution

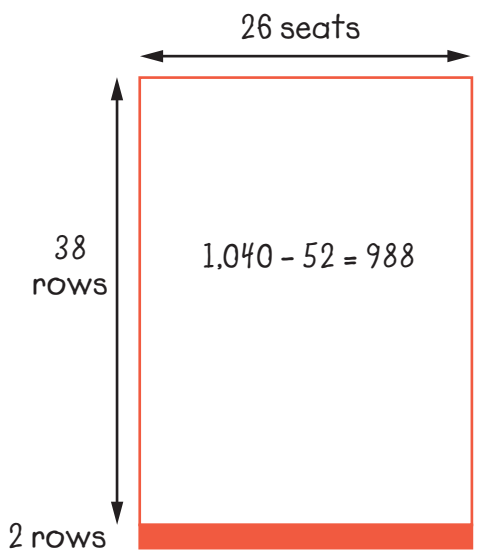
I'll pretend that there are 40 rows in the auditorium instead of 38.

40 x 26 = 1,040	*I knew that 10 × 26 = 260. I doubled that to get 520, and doubled that to get 1,040.*

So, if there were 40 rows, 1,040 people could sit in the auditorium. But there are really only 38 rows, so I have 2 extra rows of 26 chairs. I need to subtract those.

2 x 26 = 52	*I need to subtract 52. I'll do that in two parts.*
1,040 – 40 = 1,000	*First I'll subtract 40.*
1,000 – 12 = 988	*Then I'll subtract 12.*

So, **988** people can sit in the auditorium.



Solve 19 × 14 by using this first step: **20 × 14 = ?**

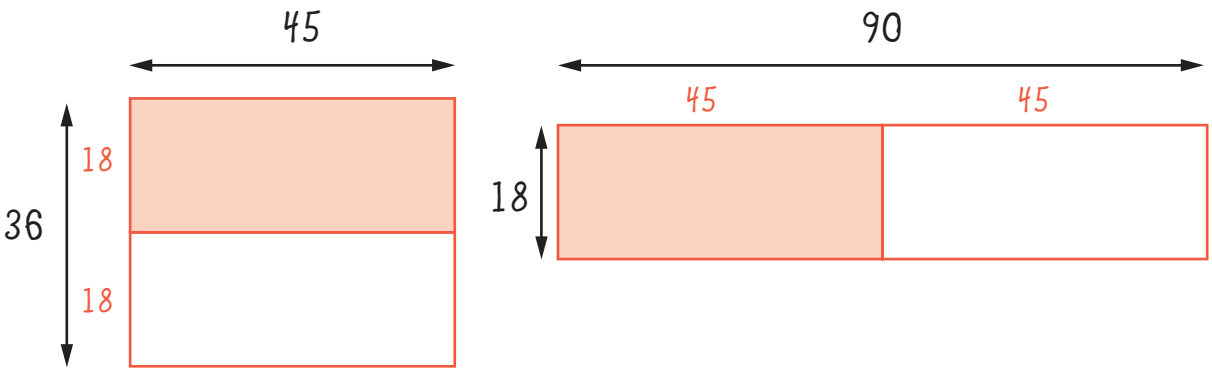
Multiplication Strategies (page 3 of 3)

A classroom measures 36 feet by 45 feet. How many 1-foot-square tiles will cover the floor?

Creating an Equivalent Problem

Nora's solution

I can double 45 and take half of 36 and pretend to change the shape of the classroom.



A 36-foot by 45-foot classroom needs the same amount of floor tiles as a 18-foot by 90-foot classroom.

For me, 18 × 90 is an easier problem to solve.

10 x 90 = 900

8 x 90 = 720

18 x 90 = **1,620**

1,620 tiles will cover the floor.

Solve: 35 × 22 = ? × 11