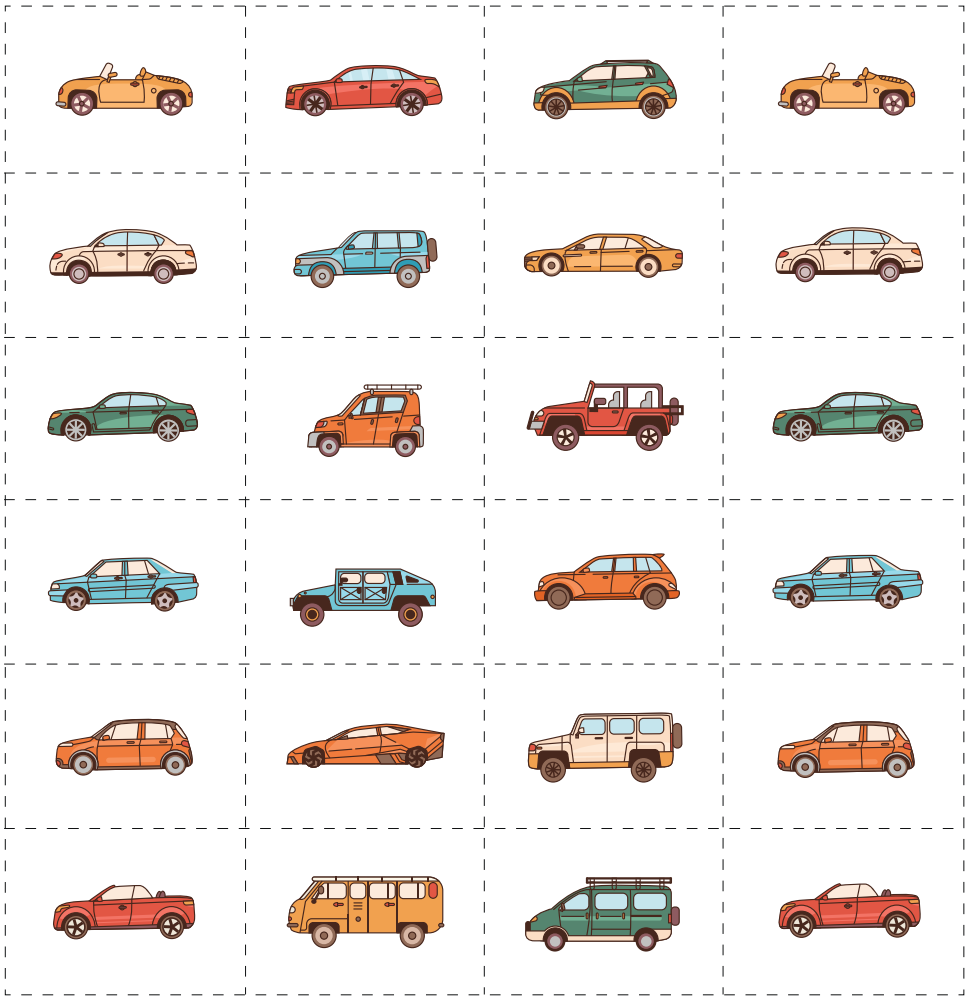
Practice Problems:

Parking Lot Multiplication

Use your cars to answer questions 1 and 2.
Then answer question 3.

1. The upper level of a parking lot has space for a 6 x 4 array of cars.
How would that array look? How many cars can fit on the upper level in total?



Total: 24 cars

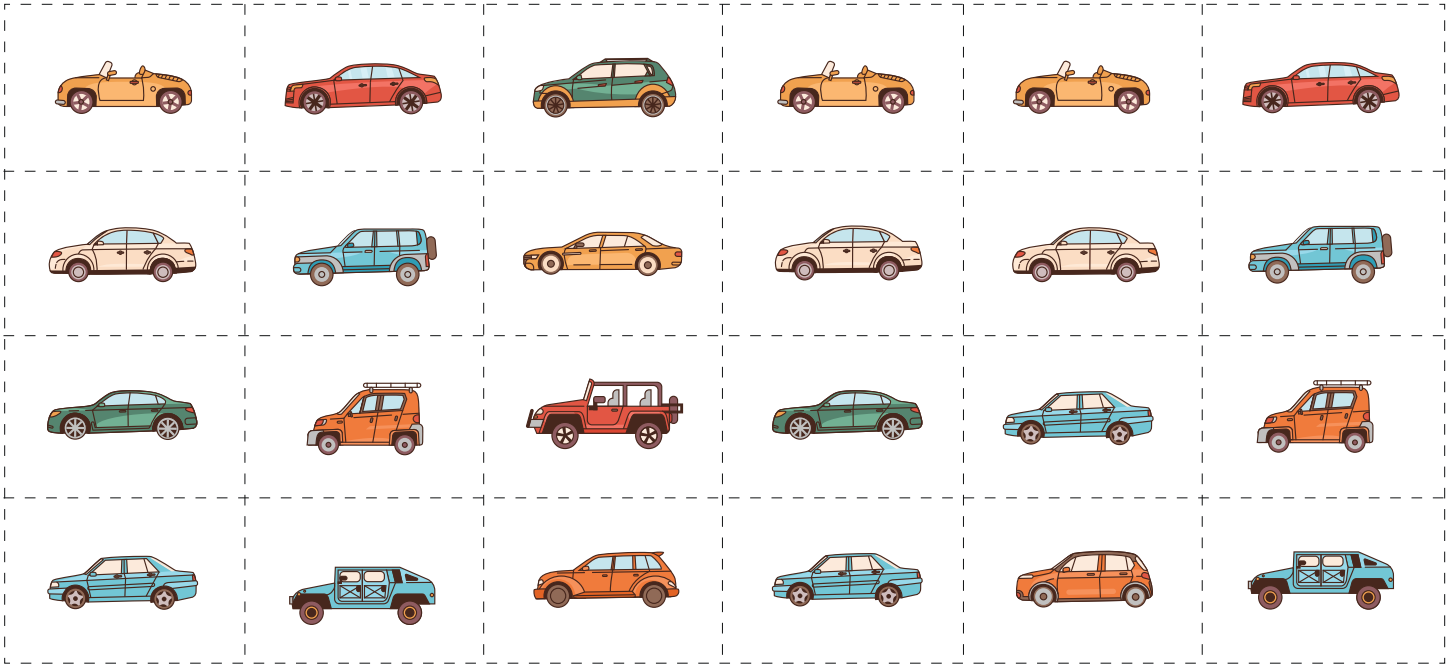
Practice Problems:

Parking Lot Multiplication

Use your cars to answer questions 1 and 2.
Then answer question 3.

2. The lower level of a parking lot has space for a 4 x 6 array of cars.
How would that array look? How many cars can fit on the lower level in total?

Total: 24 cars



Practice Problems:

Parking Lot Multiplication

Use your cars to answer questions 1 and 2.
Then answer question 3.

3. Now that you have answered both Part A and B, what do you notice about the car arrangements? How does your work show the commutative property of multiplication?

I notice that the car arrangements include the same number of cars. In Part A, there were 6 rows of 4, which is the multiplication expression 6 x 4. In Part B, there were 4 rows of 6, which is the multiplication expression 4 x 6. Just like the commutative property of multiplication states that changing the order of the factors does not change the answer, the different arrangements of cars did not change the answer.

Practice Problems:

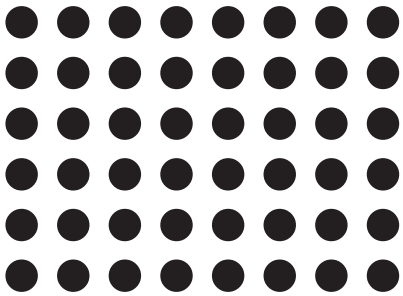
Parking Lot Multiplication

Use what you know about arrays and the Commutative Property of Multiplication to solve problems 4, 5, and 6.

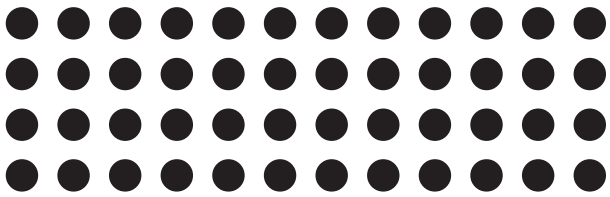
4. Engineers are planning to build new parking lots for a stadium. Lot 1 can fit 48 cars, but the engineers are trying to figure out the best arrangement for the cars. Using dots, show four array possibilities for Parking Lot 1. Label each array as a multiplication problem. Circle two arrays that represent the Commutative Property of Multiplication.

Student answers will vary, but may include arrays with:

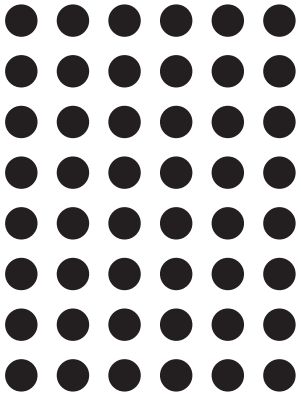
- 24 rows of 2 (24 x 2)
- 2 rows of 24 (2 x 24)
- 16 rows of 3 (16 x 3)
- 3 rows of 16 (3 x 16)
- 1 row of 48 (1 x 48)
- 48 rows of 1 (48 x 1)



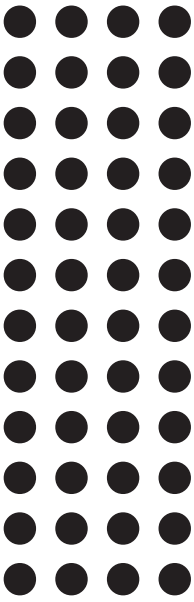
6 × 8



4 × 12



8 × 6



12 × 4

Practice Problems:

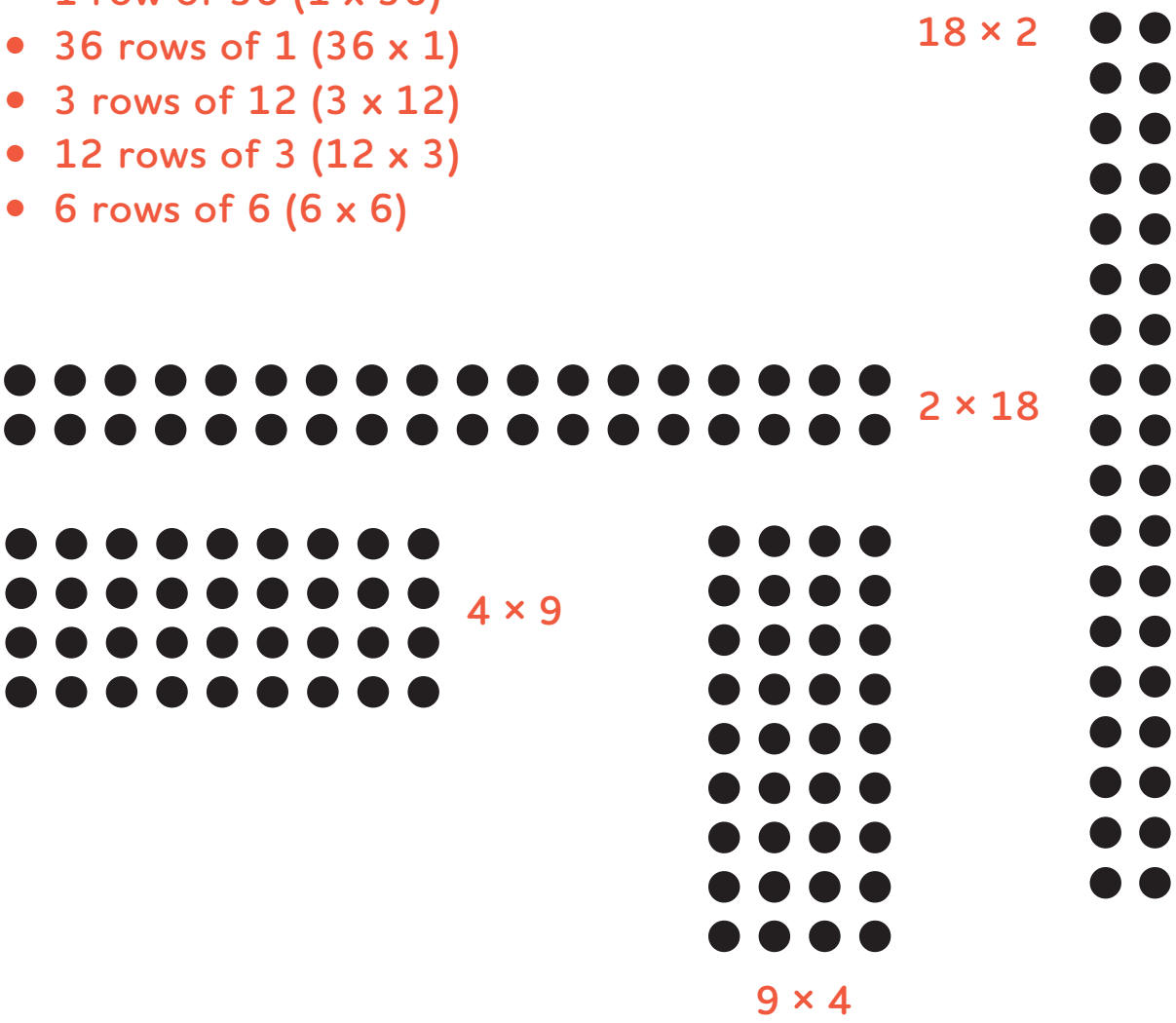
Parking Lot Multiplication

Use what you know about arrays and the Commutative Property of Multiplication to solve problems 4, 5, and 6.

5. Engineers are planning to build new parking lots for a stadium. Lot 2 can fit 36 cars, but the engineers are trying to figure out the best arrangement for the cars. Using dots, show four array possibilities for Parking Lot 2. Label each array as a multiplication problem. Circle two arrays that represent the Commutative Property of Multiplication.

Student answers will vary, but may include arrays with:

- 1 row of 36 (1 x 36)
- 36 rows of 1 (36 x 1)
- 3 rows of 12 (3 x 12)
- 12 rows of 3 (12 x 3)
- 6 rows of 6 (6 x 6)



Practice Problems:

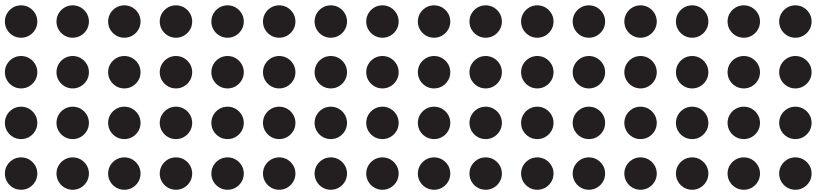
Parking Lot Multiplication

Use what you know about arrays and the Commutative Property of Multiplication to solve problems 4, 5, and 6.

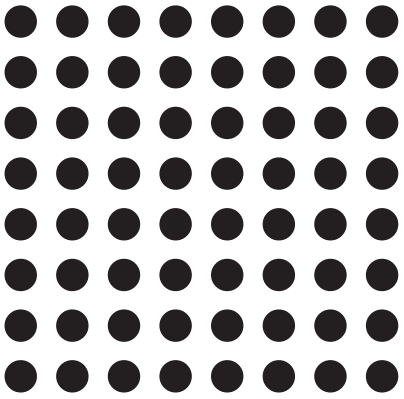
6. Engineers are planning to build new parking lots for a stadium. Lot 3 can fit 64 cars, but the engineers are trying to figure out the best arrangement for the cars. Using dots, show four array possibilities for Parking Lot 3. Label each array as a multiplication problem. Circle two arrays that represent the Commutative Property of Multiplication.

Student answers will vary, but may include arrays with:

- 1 row of 64 (1 x 64)
- 64 rows of 1 (64 x 1)
- 2 rows of 32 (2 x 32)
- 32 rows of 2 (32 x 2)
- 8 rows of 8 (8 x 8)
- 4 rows of 16 (4 x 16)

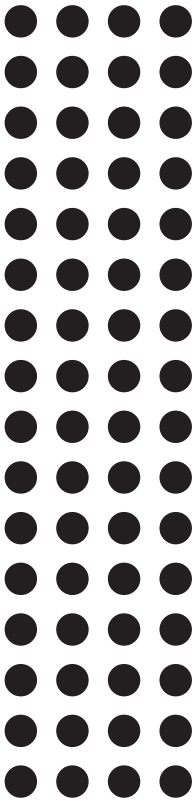


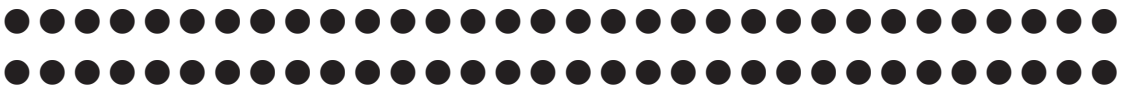
(4 x 16)



(8 x 8)

(16 x 4)





(2 x 32)