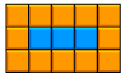
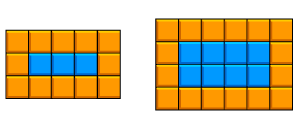
**Unit 2 – Guided Assessment Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

|  |
| --- |
| Mr. Chen is very pleased with Anthony's analysis of the square-pool problem. So he asks Anthony for a similar analysis for rectangular pools. |

Most of the rectangular pools that the company works on are 2 feet longer than they are wide, so Anthony decides to start with those. As before, Anthony looks at the simplest cases to make his concrete representation. He builds models using squares to help him visualize the problem. Each square in the models represents 1 square foot.



1. What words describe how Anthony should build the next model in his series of concrete representations of this situation?

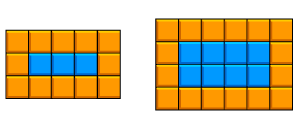


A. The pool should be 3 squares by 5 squares, and the border should be 4 squares by 6 squares.

B. The pool should be 3 squares by 5 squares, and the border should be 4 squares by 7 squares.

C. The pool should be 3 squares by 5 squares, and the border should be 5 squares by 7 squares.

1. Anthony's first and second pool models are shown. How many squares will be in the border of the model of Anthony's third pool?



A: 16

B: 20

C: 35

1. Anthony has enough information to try to represent this situation numerically. He begins a table to show the relationship between the width of the pool and the number of tiles he will need for the border.



Can you select numbers from the number bank to help Anthony build the table?

|  |  |
| --- | --- |
| Width of pool | Tiles in border  **NUMBER BANK:**  3 8 20 12 4 2 |
| 1 |  |
|  | 16 |
|  |  |

1. Anthony begins to build his table to find the number of tiles in the border. Extend his table for the values shown.

|  |  |
| --- | --- |
| Width of pool | Tiles in border |
| 1 | 12 |
| 2 | 16 |
| 3 | 20 |
| 4 | |  |  |  |  | | --- | --- | --- | --- | |  |  |  |  | |
| 5 |  |
| 6 |  |

**Borders for Rectangular Pools**



|  |  |  |  |
| --- | --- | --- | --- |
| Width of pool | 1 | 2 | 3 |
| Tiles in border | 12 | 16 | 20 |

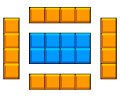
Here are Anthony's concrete and numerical representations for the first three pools. Can you select numbers to help him make a symbolic representation of the relationship between the width of a pool, *w*, and the number of tiles in its border, *t*?

**NUMBER BANK:**

6 2 4 8

*t* = *w* +

1. There are many different ways of thinking about the relationship between the width of the pool, w, and the number of tiles in the border, t. Three of these are shown here, using concrete models of the 2 ft x 4 ft pool. Match each symbolic representation to its corresponding concrete representation.

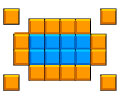
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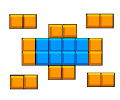
**SYMBOLIC REPRESENTATION BANK:**

t = 2w + 2(w + 2) + 4

t = 4w + 8

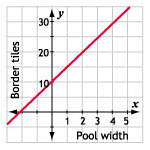
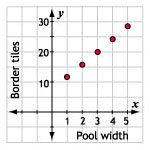
t = 4(w + 2)

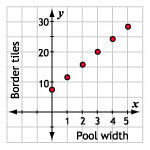
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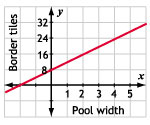
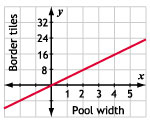
Suppose that Anthony's father plans to use only whole tiles for the pool borders. Which of the following is a graphical representation of the relationship between the width of a pool and the number of tiles in its border?

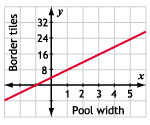
A:  B: 

C: 



Which of the following is a graph of the **symbolic representation** of the relationship between the width of a pool and the number of tiles in its border?

A:  B: 

C: 

1. How many tiles would Anthony's father need for the border of a pool that is 100 feet wide?

A: 400

B: 404

C: 408

D: 409

1. If Anthony's father uses only whole tiles, what pool width has a border that contains 100 tiles?

A: 24

B: 25.5

C: 23

D: 408