## Lesson 16: Estimate Products

* Let’s estimate products of a whole number and a fraction.

### Warm-up: Notice and Wonder: Garden Size

What do you notice? What do you wonder?



### 16.1: Priya’s Garden



Priya has enough materials to build a garden that is 36 square feet.

Choose **all** the side lengths that are reasonable for her garden. Be prepared to explain your thinking to your partner.

1. 9 feet by feet
2. 9 feet by feet
3. 12 feet by feet
4. 9 feet by feet

### 16.2: Too High, Too Low, Just About Right

1. Write a whole number product that is slightly less than, slightly greater than, or about equal to the value of .
	1. slightly less:
	2. slightly greater:
	3. just right:
2. Write a whole number product that is slightly less than, slightly greater than, or about equal to the value of .
	1. slightly less:
	2. slightly greater:
	3. just right:
3. Without calculating, use the numbers 2, 3, 5, 6, and 7, to complete the expression with a value close to 20.
4. Explain how you know your expression represents a value close to 20.

### Section Summary

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In this section, we learned how to find the area of a rectangle with a fractional side length. The shaded region has an area of  because there are 4 groups of of a square unit shaded. The area is or because there are 8 shaded parts and each one is of a square unit.



We also learned to multiply a mixed number by a whole number. We used area diagrams and expressions to see why our strategies work. For example, to solve , we can use the expression . We can see both of these expressions in the diagram.





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