Lesson 4-3

Friday, October 11, 2019 1:44 PM

Name MB 177

Lesson 4-3
Use Models to Multiply a Decimal and a Whole Number

Solve & Share

Mara has 4 garden plots. Each is 0.7 acre in area. What is the total area of the garden plots? Use objects or the grids below to show your work.

Model with math
How can you represent multiplying a decimal and a whole number?

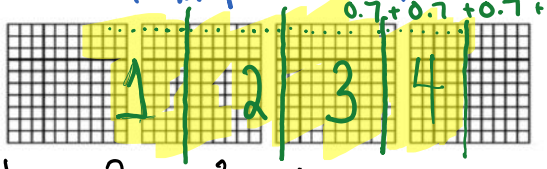
I can ...
use models to represent multiplying a decimal and a whole number.

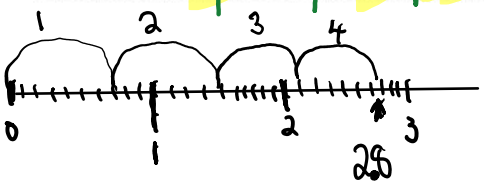
Content Standard 5.NBT.B.7
Mathematical Practices MP.3, MP.4

$4 \times 0.7 = a$

* Multiplication is repeated addition:

$0.7 + 0.7 + 0.7 + 0.7 = a$





$a = 28$
2.8 acres

$7 \times 4 = 28$

0.4 is one-tenth of 4
so $7 \times 0.4 = 2.8$ one-tenth of 28.

Look Back! MP.3 Critique Reasoning Ed says a decimal grid shows 10 tenths. Monica says a decimal grid shows 100 hundredths. Who is correct? Explain.

Both are correct. A decimal grid shows 1 whole. 1 whole is 10 tenths or 100 hundredths.

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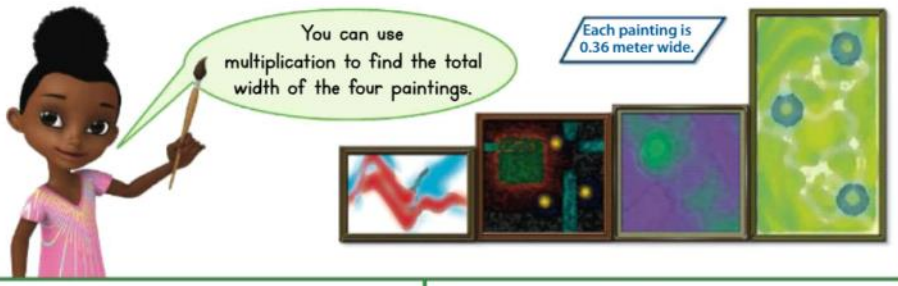
Essential Question: How Can You Model Multiplying a Decimal by a Whole Number?

A

Bari displayed four paintings side-by-side in one row. Each painting has the same width. What is the total width of the 4 paintings?

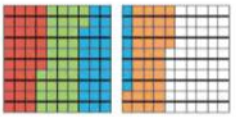


B Estimate first:

Rounding to the nearest tenth, 0.36 rounds to 0.4.

$4 \times 0.4 = 1.6$, so the answer should be close to this.

C Find 4×0.36. Multiplying 4×0.36 is like adding 0.36 four times on a hundredths grid.

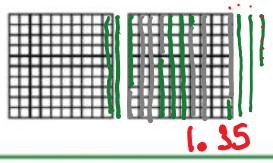


The product is the total area shaded.

There are 144 squares shaded, so $4 \times 0.36 = 1.44$.

The total width is 1.44 meters.

Convince Me! MP.4 Model with Math Bari also has 5 drawings that are each 0.27 meter wide. If they are set side-by-side in one row, what would the total width be? Fill in the grids to model the problem. Then find the product using an equation and compare the answers.



0.27 x 5 = w

0.3 x 5 = 1.5

1.35 m. wide

$$\begin{array}{r} {}^{3}0.27 \\ \times \quad 5 \\ \hline 1.35 \end{array}$$ 2dp + 0dp = 2dp

Name _____

Guided Practice

Do You Understand?

1. How does a grid help you find the product of a decimal and a whole number?

The number of squares shaded is the product.

Do You Know How?

In **2–5**, find the product. You may use grids to help.

2. 0.8×4 1dp + 0dp = 1dp, 3.2

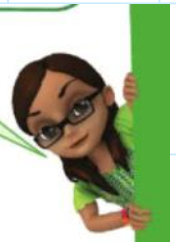
0.7×21 1dp + 0dp = 1dp, 14.7

4. 0.5×6 1dp + 0dp = 1dp, 3.0

0.6×5 1dp + 0dp = 1dp, 3

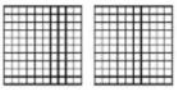
Complete #9, 14, 24, & 28 A+B

Independent Practice



In **6** and **7**, find the product. Use the decimal grids to help.

6. $0.55 \times 3 =$ ____



7. $0.45 \times 2 =$ ____

In **8–23**, find the product. You may use grids or arrays to help.

8. 5×0.5

9. 4×0.27

4 x 0.29 = 1.00

10. 6×0.13

0.27 2dp
x 4 +0dp
1.08 2dp

11. 0.78×5

12. 10×0.32

13. 6×2.03

14. 1.35×5

1 x 5 = 5

1.35 2dp
x 5 +0dp
6.75 2dp

15. 100×0.12

16. 4×0.15

17. 3×2.5

18. 0.9×7

19. 0.35×3

20. 0.25×5

21. 2.5×5

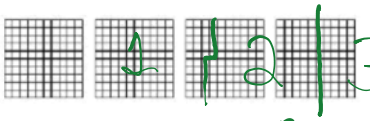
22. 2.04×2

23. 3×4.8

*For another example, see Set B on page 227

Math Practices and Problem Solving

24. **MP.4 Model with Math** A city is building 3 parks in a new subdivision. Each park will be 1.25 acres. How many total acres will the 3 parks be? Use the models to help.



1.25 + 1.25 + 1.25

3.75 acres

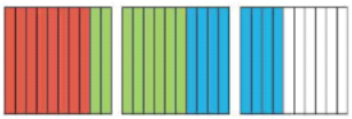
1.25 2dp
x 3 +0dp
3.75 2dp

25. **Higher Order Thinking** The city acquired more land next to the subdivision. If it decides to make each park 12.5 acres, how many additional acres would the parks occupy?

26. **MP.4 Model with Math** Write a multiplication number sentence that matches the shading on the grid.

27. **MP.3 Critique Reasoning** Jen multiplied 9 by 0.989 and got an answer of 89.01. How can you use estimation to

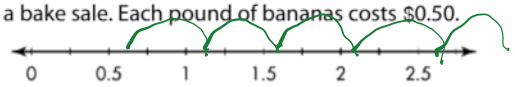
26. **MP.4 Model with Math** Write a multiplication number sentence that matches the shading on the grid.



27. **MP.3 Critique Reasoning** Jen multiplied 9 by 0.989 and got an answer of 89.01. How can you use estimation to show that Jen's answer is wrong? What mistake do you think she made?

Common Core Assessment

28. Anita needs 5 pounds of bananas to make banana bread for a bake sale. Each pound of bananas costs $0.50.



Part A

How can Anita use the number line to find the total cost of the bananas? What is the total cost?

Starting at 0, Anita marks 5 parts that are each 0.5. She will stop at 2.5. The total cost is $2.50

Part B

How can Anita use place-value patterns to check her answer?

5 x 5 = 25
x0.1 x0.1
5 x 0.5 = 2.5