

Math 3

1-9 Decomposing Units Using the Distributive Property

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| **Name:** |  | **Date:** |  |

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| **Common Core Standards** | [CCSS.MATH.CONTENT.3.OA.A.3](http://www.corestandards.org/Math/Content/3/OA/A/3/)  Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.  [CCSS.MATH.CONTENT.3.OA.B.5](http://www.corestandards.org/Math/Content/3/OA/B/5/)  Apply properties of operations as strategies to multiply and divide. *Examples: If 6 × 4 = 24 is known, then 4 × 6 = 24 is also known. (Commutative property of multiplication.) 3 × 5 × 2 can be found by 3 × 5 = 15, then 15 × 2 = 30, or by 5 × 2 = 10, then 3 × 10 = 30. (Associative property of multiplication.) Knowing that 8 × 5 = 40 and 8 × 2 = 16, one can find 8 × 7 as 8 × (5 + 2) = (8 × 5) + (8 × 2) = 40 + 16 = 56. (Distributive property.)* |

1-9 Decomposing Units Using the Distributive Property

**Decomposing**

Identify:

The expression for the following arrays:

: 4 x 5

: 2 x 5

**Decomposing**

Situation:

Lily decomposes her array of toys into 2 smaller arrays. The array is 7 rows of 3 toys.



Complete the statement below:

**\_ threes + \_ threes**

Write the decomposed expression:

**(\_ x \_) + (\_ x \_)**

How many toys does each small array have?

Part A: Encircle ✓ if the equation is decomposed correctly. Otherwise, encircle x.

1. 12 ÷ 4 = (4 ÷ 4) + (8 ÷ 4) ✓ x

2. 6 x 5 = (3 x 5) + (3 x 5) ✓ x

3. 21 ÷ 3 = (18 ÷ 3) + (6 ÷ 3) ✓ x

4. 25 ÷ 5 = (15 ÷ 5) + (10 ÷ 5) ✓ x

5. 18 ÷ 2 = (12 ÷ 2) + (8 ÷ 2) ✓ x

6. 9 x 3 = (4 x 3) + (4 x 3) ✓ x

7. 8 x 4 = (3 x 4) + (5 x 4) ✓ x

8. 7 x 2 = (4 x 2) + (3 x 2) ✓ x

9. 28 ÷ 4 = (16 ÷ 4) + (12 ÷ 4) ✓ x 10. 8 x 5 = (5 x 5) + (4 x 5) ✓ x

Part B: Encircle the bigger decomposed array and write the equation for both arrays.

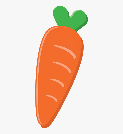
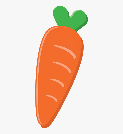
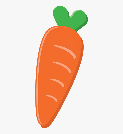
1.



x =

x =

2.



÷ =

÷ =

3.

x =

x =

Part C: Complete the equation and draw the arrays. Shade the smaller decomposed array.

1. 32 ÷ \_ = ( \_ ÷ 4 ) + ( 12 ÷ \_ ) = \_\_\_

2. 8 x 3 = ( \_ x 3 ) + ( 3 x \_ ) = \_\_\_

3. 45 ÷ 5 = ( 30 ÷ \_ ) + ( \_ ÷ \_ ) = \_\_\_

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|  | **ANSWER KEY** | | |
|  | **Situation** | **2 threes + 5 threes**  **(2 x 3) + (5 x 3)**  **6 toy soldiers and 15 balls** | |
|  | **Part A:** | **1. ✓**  **2. ✓**  **3. x**  **4. ✓**  **5. x**  **6. x**  **7. ✓**  **8. ✓**  **9. ✓**  **10. x** | |
|  | **Part B:** |  | |
|  | **1.** | 4 x 4 = 16  2 x 4 = 8 | |
|  | **2.** | 3 ÷ 3 = 1  15 ÷ 3 = 5 | |
|  | **3.** | 3 x 5 = 15  2 x 5 = 10 | |
|  | **Part C:** | |  | |
|  | **1.** | | **32 ÷ 4 = ( 20 ÷ 4 ) + ( 12 ÷ 4 ) = 8** | |
|  | **2.** | | **8 x 3 = ( 5 x 3 ) + ( 3 x 3 ) = 24** | |
|  | **3.** | | **45 ÷ 5 = ( 30 ÷ 5 ) + ( 15 ÷ 5 ) = 9** | |