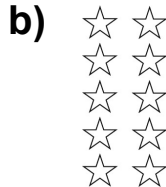Name _____   Date _____

Master 8.28   **Extra Practice 1**

Lesson 1: Investigating Equal Groups
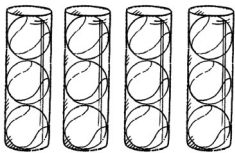
1. Write a multiplication sentence for each picture.
   a) ☆ ☆ ☆
        ☆ ☆ ☆
        ☆ ☆ ☆
        ☆ ☆ ☆

   b) ☆ ☆
        ☆ ☆
        ☆ ☆
        ☆ ☆
        ☆ ☆

2. Kyle bought 3 bags of oranges.
   There were 5 oranges in each bag.
   How many oranges did Kyle buy?
   Draw a picture and write a number sentence to show your solution.

3. Can you use multiplication to find how many in all? Explain.

   ☆ ☆   ☆ ☆   ☆
   ☆ ☆   ☆ ☆   ☆

Lesson 2: Relating Multiplication and Repeated Addition

1. Use this picture.
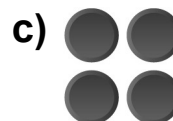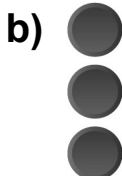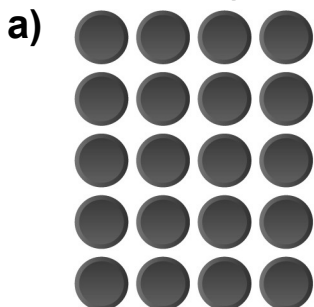
   a) Write a repeated addition sentence.
   b) Write a multiplication sentence.

2. Write as a multiplication sentence.
   a) 2 + 2 + 2   **b)** 4 + 4   **c)** 1 + 1 + 1 + 1 + 1

3. Write as a repeated addition sentence.
   a) 4 × 3 = 12   **b)** 5 × 2 = 10

Name _____ Date _____

Extra Practice 2

Lesson 3: Using Arrays to Multiply

1. Write a multiplication sentence for each array.

a) **b)** **c)**

2. Draw an array for each sentence.
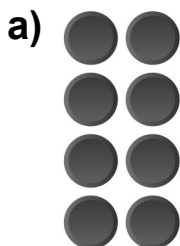**a)** $4 \times 3 = 12$ **b)** $2 \times 5 = 10$ **c)** $3 \times 3 = 9$

3. There are 3 rows of 5 children in a marching band.
a) Draw an array to show the band.
b) Write a multiplication sentence for the array.

Lesson 4: Relating Multiplication Sentences

1. Write 2 multiplication sentences for each array.

a) **b)**

2. Arrange 8 stamps into 2 different arrays.
Write a multiplication sentence for each array.

3. Draw an array to explain why 3×4 and 4×3
are both equal to 12.

Name _____ Date _____

Master 8.30   **Extra Practice 3**

Lesson 5: Division as Grouping

1. Use counters to find the number of groups.
Write a division sentence for each problem.
  a) Divide 12 counters into groups of 3.
  b) Divide 8 counters into groups of 2.

2. Students are having an ice cream party.
One carton of ice cream makes 5 sundaes.
How many cartons of ice cream do they need for 20 sundaes?

3. What do you need to know to divide using grouping?
Use words, pictures, or numbers to explain.

Lesson 6: Division as Sharing

1. Use counters to find the number of objects in each group.
Write a division sentence to record your work.
  a) 25 oranges are divided into 5 equal groups
  b) 15 balls are divided into 3 equal groups

2. Alice has 16 apple slices.
She shares them evenly on 4 plates.
How many apple slices are on each plate?
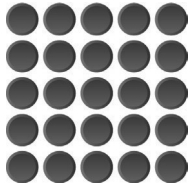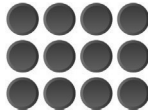
3. Create a division sharing problem for 15 ÷ 3.

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Extra Practice 4

Lesson 7: Relating Division and Repeated Subtraction

1. Write a division sentence for each repeated subtraction.
    a) $5 - 1 - 1 - 1 - 1 - 1 = 0$
    b) $12 - 3 - 3 - 3 - 3 = 0$
    c) $6 - 2 - 2 - 2 = 0$

2. Write each division sentence as repeated subtraction.
    a) $20 \div 4 = 5$ **b)** $9 \div 3 = 3$

3. How is $16 - 4$ different than $16 \div 4$?

Lesson 8: Relating Multiplication and Division Using Arrays

1. Write a multiplication and division sentence for each picture.
    a)   **b)**   **c)**

2. Use counters to make an array for each number.
    For each array, write 2 multiplication sentences
    and 2 division sentences.
    a) 6   **b)** 10   **c)** 15

3. Jeremy is putting his baseball cards into an album.
    Each page can hold 16 cards.
    Each page has 4 rows of pockets.
    How many cards can go in each row?

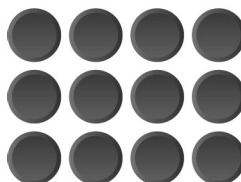Name _____ Date _____

Master 8.32   **Extra Practice 5**

Lesson 9: Relating Multiplication And Division Using Groups

1. Write a multiplication and division sentence for each picture.
   a)

   b)

2. Mica has 25 beads to make 5 matching friendship bracelets.
   How many beads can she put on each bracelet?

3. Explain why $3 \times 2 = 6$ and $6 \div 3 = 2$ are related sentences.

Name _____ Date _____

Extra Practice Sample Answers

Extra Practice 1 – Master 8.28

Lesson 1
1. a) $4 \times 3 = 12$ **b)** $5 \times 2 = 10$

2. 15 oranges. Students should draw pictures of 3 groups of 5 and write the number sentence $3 \times 4 = 15$.

3. No, the groups are not equal.

Lesson 2
1. $4 + 4 + 4 + 4 = 16$, $4 \times 4 = 16$

2. a) $3 \times 2 = 6$ **b)** $2 \times 4 = 8$
   c) $5 \times 1 = 5$

3. a) $3 + 3 + 3 + 3 = 12$
   b) $2 + 2 + 2 + 2 + 2 = 10$

Extra Practice 2 – Master 8.29

Lesson 3
1. a) $5 \times 4 = 20$ **b)** $3 \times 1 = 3$
   c) $2 \times 2 = 4$

2. Students should draw a:
   a) 4-by-3 array   **b)** 2-by-5 array
   c) 3-by-3 array

3. Students should draw a 3-by-5 array and write the number sentence $3 \times 5 = 15$.

Lesson 4
1. a) $4 \times 2 = 8$, $2 \times 4 = 8$
   b) $2 \times 5 = 10$, $5 \times 2 = 10$

2. Students should draw a 2-by-4 array and a 4-by-2 array, and write the number sentences $4 \times 2 = 8$ and $2 \times 4 = 8$.

3. Students should draw a 3-by-4 array and a 4-by-3 array on grid paper. They should explain that both arrays have 12 squares because you can rotate the 4-by-3 array to get the 3-by-4 array.

Extra Practice 3 – Master 8.30

Lesson 5
1. a) $12 \div 3 = 4$ **b)** $8 \div 2 = 4$

2. 4 cartons of ice cream; $20 \div 5 = 4$

3. I need to know how many in all and the number in each group.

Lesson 6
1. a) $25 \div 5 = 5$ **b)** $15 \div 3 = 5$

2. $16 \div 4 = 4$. There are 4 apple slices on each plate.

3. Story problems should reflect 15 objects divided into 3 equal groups.

Extra Practice 4 – Master 8.31

Lesson 7
1. a) $5 \div 1 = 5$ **b)** $12 \div 4 = 3$ **c)** $6 \div 2 = 3$

2. a) $20 - 4 - 4 - 4 - 4 - 4 = 0$
   b) $9 - 3 - 3 - 3 = 0$

3. In $16 - 4$, I am subtracting 4 only once, so the answer is 12. In $16 \div 4$, I am subtracting 4 until I reach 0. The number of times I subtract is the number of groups of 4, so $16 \div 4 = 4$.

Lesson 8
1. a) $5 \times 5 = 25$, $25 \div 5 = 5$
   b) $2 \times 4 = 8$, $4 \times 2 = 8$, $8 \div 2 = 4$, $8 \div 4 = 2$
   c) $3 \times 4 = 12$, $4 \times 2 = 12$, $12 \div 3 = 4$, $12 \div 4 = 3$

2. a) $2 \times 3 = 6$, $3 \times 2 = 6$, $6 \div 2 = 3$, $6 \div 3 = 2$
   b) $2 \times 5 = 10$, $5 \times 2 = 10$, $10 \div 2 = 5$, $10 \div 5 = 2$
   c) $3 \times 5 = 15$, $5 \times 3 = 15$, $15 \div 2 = 3$, $15 \div 5 = 3$

3. Jeremy can put 4 cards into each row. $16 \div 4 = 4$

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Master 8.33b **Extra Practice Sample Answers, continued**

Extra Practice 5 – Master 8.32

Lesson 9
1. Students should write 1 of these multiplication sentences and 1 of these division sentences.
   a) $2 \times 3 = 6$, $3 \times 2 = 6$, $6 \div 2 = 3$, $6 \div 3 = 2$
   b) $3 \times 4 = 12$, $4 \times 3 = 12$, $12 \div 3 = 4$, $12 \div 4 = 3$

2. Mica can put 5 beads on each bracelet.
   $25 \div 5 = 5$

3. When I make a 3-by-2 array, I use 6 counters. So, $3 \times 2 = 6$. I can also use the array to show 6 divided into 3 equal parts. So, $6 \div 3 = 2$. Since both sentences can be shown by the same array, we say they are related sentences.