

## A.6.3: Multiplication with Mathematical Modeling

Directions: If you know the answer, write it down. If not, touch the TouchPoints on the first number as you sequence count by the second number and write the answer.

$$\begin{array}{r} 8 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} 3 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 7 \\ \times 0 \\ \hline \end{array}$$

$$\begin{array}{r} 5 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} 4 \\ \times 3 \\ \hline \end{array}$$

Use the array patterns to solve the multiplication problems.

$$\begin{array}{r} \phantom{0} \\ \phantom{0} \\ \phantom{0} \\ \phantom{0} \\ \phantom{0} \\ \phantom{0} \\ \phantom{0} \\ \phantom{0} \end{array}$$

$$\underline{\phantom{0}} \cdot \underline{\phantom{0}} = \underline{\phantom{0}}$$

$$\begin{array}{r} \phantom{0} \\ \phantom{0} \\ \phantom{0} \\ \phantom{0} \\ \phantom{0} \\ \phantom{0} \\ \phantom{0} \\ \phantom{0} \end{array}$$

$$\underline{\phantom{0}} \cdot \underline{\phantom{0}} = \underline{\phantom{0}}$$

Modeling with Arrays: Draw one more group to each array and solve the multiplication problem.

$$\begin{array}{ccc} \bullet & \bullet & \bullet \\ \bullet & \bullet & \bullet \\ \bullet & \bullet & \bullet \end{array} \quad \underline{\phantom{0}} \cdot \underline{\phantom{0}} = \underline{\phantom{0}}$$

$$\begin{array}{ccc} \bullet & \bullet & \bullet & \bullet \\ \bullet & \bullet & \bullet & \bullet \end{array} \quad \underline{\phantom{0}} \cdot \underline{\phantom{0}} = \underline{\phantom{0}}$$

Use the visual to complete the equation below.

$$\begin{array}{ccc} \bullet & \bullet & \bullet \\ \bullet & \bullet & \bullet \\ \bullet & \bullet & \bullet \\ \bullet & \bullet & \bullet \\ \bullet & \bullet & \bullet \\ \bullet & \bullet & \bullet \\ \bullet & \bullet & \bullet \end{array} \quad 7 \cdot \underline{\phantom{0}} = \underline{\phantom{0}}$$

### B.4.4: Repeated Subtraction & Divisive Relationships

Directions: Touch the top number, say its name and count backward on the TouchPoints of the bottom number in the correct order. Write the answer. Then say the problem and answer quietly.

$$\begin{array}{r} 2^2 \\ -2_0 \\ \hline 0 \end{array}$$

$$\begin{array}{r} 3^3 \\ -2_1 \\ \hline 1 \end{array}$$

$$\begin{array}{r} 4 \\ -2 \\ \hline \end{array}$$

$$\begin{array}{r} 5 \\ -2 \\ \hline \end{array}$$

$$\begin{array}{r} 6 \\ -2 \\ \hline \end{array}$$

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Modeling with Arrays: Using repeated subtraction, can you get to zero?

$$\begin{array}{|c|} \hline \bullet \\ \hline \bullet \\ \hline \end{array} \begin{array}{|c|} \hline \bullet \\ \hline \bullet \\ \hline \end{array} = 4$$

$$\begin{array}{|c|} \hline \bullet \\ \hline \bullet \\ \hline \bullet \\ \hline \end{array} \begin{array}{|c|} \hline \bullet \\ \hline \bullet \\ \hline \bullet \\ \hline \end{array} \begin{array}{|c|} \hline \bullet \\ \hline \bullet \\ \hline \bullet \\ \hline \end{array} = 9$$

$$4 - 2 = \square$$

$$9 - 3 = \square$$

$$2 - 2 = \square$$

$$6 - 3 = \square$$

$$3 - 3 = \square$$

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Conceptual Understanding: Use repeated subtraction to take away 4 groups of 2.

$$\begin{array}{|c|} \hline \bullet \\ \hline \bullet \\ \hline \end{array} \begin{array}{|c|} \hline \bullet \\ \hline \bullet \\ \hline \end{array} \begin{array}{|c|} \hline \bullet \\ \hline \bullet \\ \hline \end{array} \begin{array}{|c|} \hline \bullet \\ \hline \bullet \\ \hline \end{array} = 8$$