EUREKA MATH™ TIPS FOR PARENTS

KEY CONCEPT OVERVIEW

Lessons 1 and 2 focus on the commutative property. This property helps students recognize, for example, that if they know $3 \times 6 = 18$, then they also know $6 \times 3 = 18$. Lesson 3 introduces the use of a letter to represent unknown values in **equations**.

You can expect to see homework that asks your child to do the following:

- Use **arrays** to write two multiplication facts.

- Match **expressions** that show the commutative property, for example, $3 \times 6 = 6 \times 3$; 3 sixes = 6 threes; 10 twos = 2×10.

- Find the value of the unknown (or letter) in simple equations and in word problems (as shown in the Sample Problem below).

SAMPLE PROBLEM *(From Lesson 3)*

Each equation contains a letter representing the unknown. Find the value of the unknown.

$12 \div 3 = c$	$c = \underline{\ \textbf{4}\ }$
$4 \times a = 24$	$a = \underline{\ \textbf{6}\ }$

Additional sample problems with detailed answer steps are found in the *Eureka Math Homework Helpers* books. Learn more at GreatMinds.org.

HOW YOU CAN HELP AT HOME

- Give your child a blank multiplication chart (ask your child's teacher for one, or search online for a printable), and ask him to fill in as many facts as possible in five minutes. Ask your child what strategies he used to fill in the chart quickly.

×	1	2	3	4	5	6	7	8	9	10
1		2	3							
2		4		8				16		
3						18				
4				20						
5										50
6		12								
7										
8										
9										
10										

HOW YOU CAN HELP AT HOME *(continued)*

- Play The Product Dice Game with your child.

  1. Player 1 rolls two dice and multiplies those two numbers together. On a piece of paper, write the multiplication equation and the product for that turn, which represents the score.

  2. Pass the dice to Player 2, who does the same.

  3. When the dice return to Player 1, add the product of the new roll to the previous score. The player who reaches 500 first is the winner.

     For example:

     Player 1 Roll 1: $5 \times 4 = 20$

     Player 1 Roll 2: $6 \times 5 = 30$; $20 + 30 = 50$, so Player 1's score is now 50.

     Player 1 Roll 3: $2 \times 3 = 6$; $50 + 6 = 56$, so Player 1's score is now 56.

- Variation: Use one die and a deck of playing cards up to the 10's (no aces or face cards). Roll one die, and then choose one card and multiply the two numbers together. This will help your child practice larger facts.

TERMS

Equation: A statement that two expressions are equal, for example, $3 \times 4 =$ ___ or $3 \times 4 = 12$.

Expression: Any combination of sums, differences, products, or divisions of numbers that evaluates to a number. Expressions do not have an equal sign. For example, $3 + 4$, 3×4, and $12 \div 4$ are all expressions.

MODELS

Array: An arrangement of objects in rows and columns.

# EUREKA MATH™ TIPS FOR PARENTS

KEY CONCEPT OVERVIEW

In Lessons 4 through 7, students learn to solve multiplication and division problems that use units of 6 and 7. They will learn to use the 5's to help them solve these problems.

You can expect to see homework that asks your child to do the following:

- Use **number bonds** to help **skip-count** by 6 and 7.
- Use the **break apart and distribute strategy** with **tape diagrams** and number bonds to solve challenging multiplication problems that use units of 6 and 7 (as shown in the Sample Problem below).
- Find the value of the unknown (or letter) in simple equations and in word problems.

SAMPLE PROBLEM *(From Lesson 6)*

Break apart 49 to solve 49 ÷ 7.
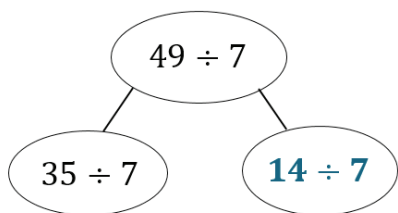
$$49 \div 7$$
$$35 \div 7 \qquad 14 \div 7$$

$$49 \div 7 = (35 \div 7) + (14 \div 7)$$
$$= 5 + \underline{\quad 2 \quad}$$
$$= \underline{\quad 7 \quad}$$

Additional sample problems with detailed answer steps are found in the *Eureka Math Homework Helpers* books. Learn more at GreatMinds.org.

HOW YOU CAN HELP AT HOME

- Continue to practice multiplication facts for 6's and 7's from memory. For example, ask your child a 6-fact such as, "What is 5×6 or 5 sixes?" (30) Then say, "Add one more group of 6 to 30. What's 6×6 or 6 sixes?" Your child should be able to do the mental math to add 6 to 30, answering "36."
- Use an empty egg carton and a die to make a simple game. In one row of the carton's compartments, use a marker to write the numbers 2, 3, 4, 5, 6, and 7, one number in each

HOW YOU CAN HELP AT HOME *(continued)*

compartment. In the next row, write the numbers in descending order: 7, 6, 5, 4, 3, 2. Toss the die into the egg carton. Have your child multiply the number on the top face of the die by the number written on the compartment in which it landed. For example, in the image shown, your child would solve the problem 6 × 5. Another way to come up with random numbers is to place the die in the egg carton, close it, and shake it.
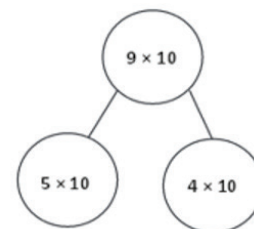
TERMS

Skip-count/Count-by: To count in equal increments by a number other than 1. For example, 0, 2, 4, 6, 8, 10, 12, 14, 16, 18, 20 is skip-counting by twos.
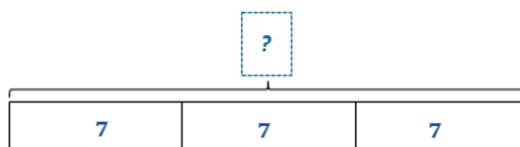
MODELS

Break Apart and Distribute Strategy

$8 \times 3 = \underline{24}$

$(5 \times 3) = \underline{15}$

$(3 \times 3) = \underline{9}$

$8 \times 3 = (5 \times 3) + (3 \times 3)$
$= \underline{15} + \underline{9}$
$= \underline{24}$

Number Bond: A model that illustrates a part–part–whole relationship.

9×10

5×10 4×10

Tape Diagram: A model used to help make sense of a word problem.

?		
7	7	7

EUREKA MATH™ TIPS FOR PARENTS

KEY CONCEPT OVERVIEW

In Lessons 8 through 11, students focus on multiplication and division problems with units up to 8.

You can expect to see homework that asks your child to do the following:

- Use parentheses to group numbers to make an easier problem.
- Use the break apart and distribute strategy to solve multiplication and division problems (as shown in the Sample Problem below).
- Find the value of the unknown (letter) in simple equations and in word problems.

SAMPLE PROBLEM *(From Lesson 10)*

Using the array, fill in the blanks to make the statements true.

$$8 \times 7 = 7 \times 8 = \mathbf{56}$$

$$(8 \times 5) = \mathbf{40} \qquad (8 \times 2) = \mathbf{16}$$
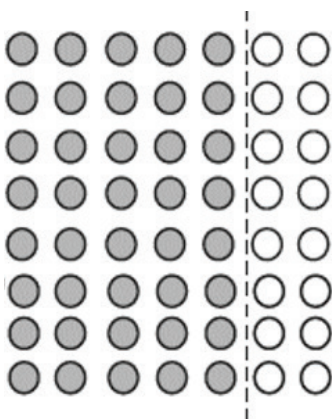
$$
\begin{aligned}
7 \times 8 \ &= 8 \times (5 + \mathbf{2}) \\
&= (8 \times 5) + (8 \times \mathbf{2}) \\
&= 40 + \mathbf{16} \\
&= \mathbf{56}
\end{aligned}
$$

Additional sample problems with detailed answer steps are found in the *Eureka Math Homework Helpers* books. Learn more at GreatMinds.org.

HOW YOU CAN HELP AT HOME

- Continue to practice multiplication and division, including all facts up to 8's, from memory. Focus on the problems that your child has the most difficulty remembering. Use car rides, shopping trips, or other "in-between" times to have your child exercise her math muscles.

- Write multiplication and division facts on a beach ball, football, volleyball, or soccer ball with a permanent marker. Toss the ball to your child. He must answer the problem under his left thumb before tossing the ball back to you.

- Have your child use cereal, small candies, stickers, or small toys to construct an array that shows a multiplication by 8 problem. Then ask your child to separate the array after the fifth column. Next ask her to write and solve two smaller multiplication problems that would show how many total objects are in the larger array.

EUREKA MATH™ TIPS FOR PARENTS

KEY CONCEPT OVERVIEW

In Lessons 12 through 15, students learn to solve multiplication and division problems with units of 9. They explore the unique patterns that occur in this set of facts to help with recall.

You can expect to see homework that asks your child to do the following:

- Use multiplying by 5 as a strategy to help solve larger problems.

- Find ten more and one less than a number.

- Find the value of the unknown (letter) in simple equations and in word problems.

- Look for patterns in the nines facts.

SAMPLE PROBLEM *(From Lesson 14)*

Sonya figures out the answer to 7×9 by putting down her right index finger. (See image.) What is the answer? Explain how to use Sonya's finger strategy.
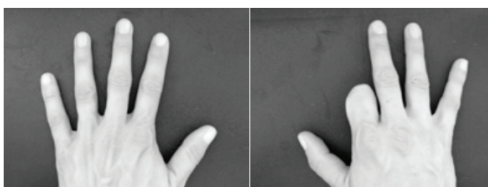
Sonya is thinking that each finger matches a number from 1 to 10, with 1 on the left and 10 on the right. She puts down her seventh finger to match the 7 in 7×9. Then she sees that there are 6 fingers to the left (tens place) and 3 fingers to the right (ones place). The answer is 63.

Additional sample problems with detailed answer steps are found in the *Eureka Math Homework Helpers* books. Learn more at GreatMinds.org.

HOW YOU CAN HELP AT HOME

- Continue to practice multiplication and division facts up to multiples of 9 from memory. Focus on the facts that your child has the most difficulty remembering.

- Read children's picture books about multiplication and division with your child. Check for titles online or in your local library or bookstore. Here are some titles to get you started:

  - *7 × 9 = TROUBLE!,* by Claudia Mills and C. Brian Karas

  - *365 Penguins,* by Jean-Luc Fromental and Joëlle Jolivet

  - *Multiplying Menace: The Revenge of Rumpelstiltskin,* by Pam Calvert and Wayne Geehan

  - *Now … for My Next Number! Songs for Multiplying Fun,* by Margaret Park and Sophia Esterman. The book comes with a CD of songs to help children remember math facts.

  - *Breakfast at Danny's Diner: A Book About Multiplication,* by Judith Stamper and Chris Demarest

- Play a memory match game with multiplication and division.

  1. Use note cards or construction paper to make a set of cards. On the cards, write the multiplication and division facts that your child struggles with the most.

  2. Make a second set of cards showing the answers that match the facts.

  3. Mix the two sets of cards together and arrange them all facedown in an array.

  4. Players take turns turning over two cards at a time to see whether the cards match a multiplication or division fact with its correct answer. If no match is made, the cards are turned facedown. If a match is made, the player keeps the two cards. Continue until all the cards in the array have been matched. The player with the most cards at the end of the game is the winner.

For example, if your child turns over one card that shows 8×7 and another showing 63, a match was not made. She must turn the cards facedown because $8 \times 7 = 56$, not 63. If, however, she turns over a 9 and $63 \div 7$, she keeps both cards because 9 is the correct answer for the division expression.

EUREKA MATH™ TIPS FOR PARENTS

KEY CONCEPT OVERVIEW

In Lessons 16 through 18, students learn to multiply and divide with units of 0 and 1. While the multiplication and division facts for 0 and 1 tend to be easy for students to recall, they have unique patterns.

You can expect to see homework that asks your child to do the following:

- Solve multiplication and division facts with units of 0 and 1.

- Look for patterns in multiplication and division facts, using the multiplication table.

- Use the **RDW process** to solve two-step word problems involving addition, subtraction, multiplication, and division.

SAMPLE PROBLEM *(From Lesson 16)*

Matt explains to his little sister what he learned about dividing with zero.

 a. What might Matt tell his sister about solving $0 ÷ 9$? Explain your answer.

If 0 is divided by any number, it is still 0 because the amount you start with is 0 so there is nothing to divide. I can also write a related multiplication fact that is true: $0 ÷ 9 = 0$ and $0 × 9 = 0$.

b. What might Matt tell his sister about solving $8 ÷ 0$? Explain your answer.

If any amount is divided by 0, it doesn't make sense because I cannot divide something into 0 equal groups. I also cannot write a related multiplication fact that is true: $8 ÷ 0$ does not equal 8 or 0, because $8 × 0$ does not equal 8 and $0 × 0$ does not equal 8.

Additional sample problems with detailed answer steps are found in the *Eureka Math Homework Helpers* books. Learn more at GreatMinds.org.

HOW YOU CAN HELP AT HOME

- Continue to practice all multiplication and division facts from 0 to 9 from memory. Practice with games or with blank multiplication tables. Use a timer to see how quickly your child can fill in a blank multiplication table.

- Make Fact Towers. Get a box of small paper cups. On the outside of every cup, write a multiplication or division fact. On the inside of every cup, write the answer. Stack the cups and have your child pull the top cup from the stack and solve the problem written on it. If your child answers correctly, place the cup upside down on the table; if not, place the cup on the bottom of the stack. Arrange cups with correct answers to form a pyramid. (See images.) Keep going until all the cups are part of the pyramid. See how tall your child can make the pyramid!

TERMS

RDW process: A three-step process used in solving word problems. RDW stands for Read, Draw, Write: Read the problem for understanding; Draw a model (e.g., a tape diagram) to help make sense of the problem; Write an equation and a statement of the answer.

EUREKA MATH™ TIPS FOR PARENTS

KEY CONCEPT OVERVIEW

In Lessons 19 through 21, students apply knowledge of multiplication facts to multiplying with multiples of ten. For example, if students know $4 \times 6 = 24$, then they know $4 \times 60 = 240$ because 60 is ten times larger than 6.

You can expect to see homework that asks your child to do the following:

- Use **place value disks** and a place value chart to solve multiplication problems.
- Place parentheses around numbers to group multiplication problems to make an easier problem. (See Sample Problem.)
- Solve word problems that require multiplying with multiples of ten.

SAMPLE PROBLEM *(From Lesson 20)*

Place ( ) in the equation to find the related fact.

$$3 \times 30 = 3 \times (3 \times 10)$$
$$= (3 \times 3) \times 10$$
$$= \underline{9} \times 10$$
$$= \underline{90}$$

Additional sample problems with detailed answer steps are found in the *Eureka Math Homework Helpers* books. Learn more at GreatMinds.org.

HOW YOU CAN HELP AT HOME

- Play the Double Dice game with your child.
  1. You will need two dice and a piece of paper.
  2. The first player rolls one die and multiplies the number rolled by 10. The player then multiplies this answer by the number rolled with the second die. This final product is the player's score for this turn.

For more resources, visit » *Eureka.support*

HOW YOU CAN HELP AT HOME *(continued)*

For example, if your child's first roll is a 6, he writes
$6 \times 10 = 60$. When he rolls the second die, he gets a 5. He
then multiplies the 60 by 5 to get *300*, which is his score
for that turn. Play multiple rounds, taking turns with your
child. (See image at right.)

3. Use the paper to record calculations and keep track of
    each player's scores. Keep a running total of each player's
    score, adding the score for each round to the previous
    total.

4. The first player to break 1,000 is the winner!
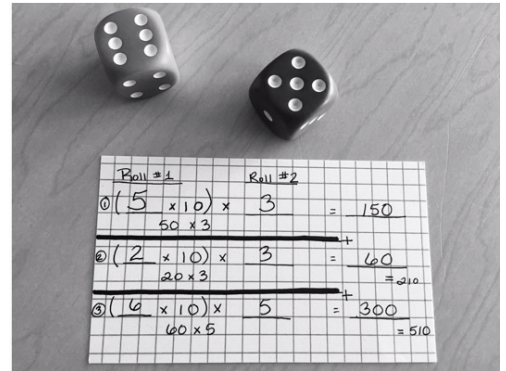
NOTE: Since the Double Dice game limits players to factors up to 6, you may want to try this
variation that offers practice with factors up to 9.

▪   Instead of using two dice, use one die and playing cards with numbers 2 through 9 only. Shuffle
    the cards and place them facedown in a stack.

▪   Roll the die and multiply the number rolled by 10. Then draw one playing card. Multiply the
    previous result by the number on the playing card. This final number is the score for the turn.

▪   Set the winning score higher because you are playing with larger factors. For example, say the
    first player to break 5,000 is the winner.

MODELS

Place Value Disks