Name _____

Using Mental Math to Multiply

You can also use patterns to multiply mentally.

Fact: $6 \times 8 = \mathbf{48}$

$60 \times 8 = \mathbf{48}0$	$6 \times 80 = \mathbf{48}0$
$600 \times 8 = \mathbf{4,8}00$	$60 \times 80 = \mathbf{4,8}00$
$6,000 \times 8 = \mathbf{48},000$	$600 \times 80 = \mathbf{48},000$
$60,000 \times 8 = \mathbf{48}0,000$	$6,000 \times 80 = \mathbf{48}0,000$

Pattern: Notice that the product is always the digits 48 followed by the total number of zeros that are in the factors.

Find $30 \times 3 \times 50$.

Use the Commutative and Associative Properties of Multiplication to regroup.

$(30 \times 50) \times 3$

$1,500 \times 3 = 4,500$

Commutative Property of Multiplication	Associative Property of Multiplication
You can multiply factors in any order.	You can change the grouping of factors.
$15 \times 9 = 9 \times 15$	$(8 \times 20) \times 5 = 8 \times (20 \times 5)$

Find each product. Use patterns and properties to compute mentally.

1. $80 \times 90 = $ _____

2. $40 \times 800 = $ _____

3. $5 \times 10 \times 20 = $_____

4. $4 \times 30 \times 25 = $ _____

5. You know that $6 \times 7 = 42$. How can you find 60×700?

_____

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