Multiplication Properties

You can use multiplication properties to help you multiply more easily.

Associative Property of Multiplication
You can change the grouping of the factors. The product stays the same.

$(3 \times 4) \times 4 = 48$
Factors   Product
$12 \times 4 = 48$

$3 \times (4 \times 4) = 48$
Factors   Product
$3 \times 16 = 48$

Commutative Property of Multiplication
You can change the order of the factors. The product stays the same.

$7 \times 4 = 28$
Factors   Product

$4 \times 7 = 28$
Factors   Product

Zero Property of Multiplication
When one of the factors is 0, the product is always 0.

$3 \times 0 = 0$
Factors   Product

$0 \times 3 = 0$
Factors   Product

Identity Property of Multiplication
When one of the factors is 1, the product is always the other factor.

Identify the multiplication property or properties used in each equation.

1. $100 \times 0 = 0$ _____

2. $7 \times 2 = 2 \times 7$ _____

3. $1 \times 55 = 55$ _____

4. $(6 \times 7) \times 9 = 6 \times (7 \times 9)$ _____

Use the multiplication properties to determine what number must be in the box.

5. $5 \times 4 = \boxed{} \times 5$

6. $99 \times \boxed{} = 99$

7. $(3 \times 12) \times \boxed{} = 3 \times (12 \times 8)$

8. $\boxed{} \times 1 = 0$

9. $\boxed{} \times 2 = 2 \times 50$

10. $(16 \times \boxed{}) \times 25 = 16 \times (33 \times 25)$