Name _____

Multiple Ways to Multiply

The **zero property**: Any factor multiplied by 0 always has a product of 0.
   $9 \times 0 = 0$

The **property of one**: Any factor multiplied by 1 always has a product of the other factor.
   $5 \times 1 = 5$

The **commutative property**: Changing the order of the factors does not change the product.
   $4 \times 3 = 3 \times 4$

The **associative property**: Changing how the factors are grouped does not change the product.
   $(5 \times 2) \times 6 = 5 \times (2 \times 6)$

The **distributive property**: Multiplying a factor by the sum of two numbers equals the sum of the two products.
   $6 \times (2 + 5) = (6 \times 2) + (6 \times 5)$

Identify each property and then solve.

A. _____ $5 \times 6 = 6 \times 5$

$5 \times 11 = \boxed{} \times \boxed{}$ $4 \times \boxed{} = 12 \times \boxed{}$ $\boxed{} \times \boxed{} = 7 \times 6$

$\boxed{} \times 9 = \boxed{} \times 3$ $8 \times 10 = \boxed{} \times \boxed{}$ $2 \times \boxed{} = 5 \times \boxed{}$

B. _____ $3 \times (2 + 5) = (3 \times 2) + (3 \times 5)$

$6 \times (4 + 5) = (6 \times \boxed{}) + (6 \times \boxed{})$ $7 \times (\boxed{} + \boxed{}) = 7 \times 5) + (7 \times 8)$

$9 \times (3 + 7) = (9 \times \boxed{}) + (9 \times \boxed{})$ $\boxed{} \times (5 + 8) = (3 \times 5) + (3 \times 8)$

C. _____ $135 \times 0 = 0$

$18 \times \boxed{} = 0$ $3 \times 0 = \boxed{}$ $\boxed{} \times 11 = 0$ $9 \times \boxed{} = 0$ $8 \times 0 = \boxed{}$

$7 \times 0 = \boxed{}$ $15 \times \boxed{} = 0$ $0 \times 6 = \boxed{}$ $8 \times \boxed{} = 0$ $\boxed{} \times 9 = 0$

D. _____ $3 \times (2 \times 4) = (3 \times 2) \times 4$

$6 \times (2 \times 3) = (\underline{}) \times 3$ $\boxed{} \times (4 \times 9) = (6 \times 4) \times 9$

$8 \times (12 \times 2) = (\underline{}) \times 2$ $(5 \times 2) \times 3 = 5 \times (\underline{})$

$(5 \times 4) \times 6 = 5 \times (4 \times \boxed{})$ $4 \times (\underline{}) = (\boxed{} \times 3) \times 8$