Properties of whole numbers

Name:

Commutative property
An operation is commutative if a change in the order of the numbers does not change the results. This means the numbers can be swapped.
Numbers can be added in any order. *Example: 4 + 5 = 5 + 4*
Numbers can be multiplied in any order. *Example: 2 x 3 = 3 x 2*

Associative property
An operation is associative if a change in grouping does not change the results. This means the parenthesis (or brackets) can be moved.

Numbers that are added can be grouped in any order.
Example: (4 + 5) + 6 = 5 + (4 + 6)

Numbers that are multiplied can be grouped in any order.
Example: (4 X 5) X 6 = 5 X (4 X 6)

Distributive property
A factor can be broken apart. *Example:3 x 12 = (3 x 1 0) + (3 x 2)*
12 = 10 + 2, so you can multiply by 10, multiply by 2, and add.

Summary of number properties:

Number properties	x	÷	+	-
Commutative	Yes	No	Yes	No
Associative	Yes	No	Yes	No
Distributive	Yes	No	No	No

Identity
Multiplying a number by one gives the original number. *Example: 3 x 1 = 3*

Zero
Multiplying a number by zero gives zero. *Example: 3 x 0 = 0*

Identify Distributive, Associative, or Commutative law:

1. 2 x 3 = 3 x 2 _____
2. (6 + 9) + 8 = 6 + (9 + 8) _____
3. 5 + 12 = 12 + 5 _____
4. 10 x 9 = 9 x 10 _____
5. 6 x 8 + 4 x 8 = (6 + 4) x 8 _____
6. (6 - 4) x 5 = 6 __ 5 __ 4 __ 5 _____

Answers

Identify Distributive, Associative, or Commutative law:

1. $2 \times 3 = 3 \times 2$ ***Commutative***
2. $(6 + 9) + 8 = 6 + (9 + 8)$ ***Associative***
3. $5 + 12 = 12 + 5$ ***Commutative***
4. $10 \times 9 = 9 \times 10$ ***Commutative***
5. $6 \times 8 + 4 \times 8 = (6 + 4) \times 8$ ***Distributive***
6. $(6 - 4) \times 5 = 6$ ***x*** 5 - 4 ***x*** 5 ***Distributive***