

MasterMath

Perfect Practice Worksheet

Name _____

Date _____

Commutative and Associative Properties of Addition and Multiplication

"*" = multiply "/" = divide

1. **True or False: Does A = B?**

A	B	equal?
$6 + 8$	$8 + 6$	yes
$6 - 8$	$8 - 6$	no
$5 + x$	$x + 5$	yes

A	B	equal?
$3 * 5$	$5 * 3$	yes
$8 / 2$	$2 / 8$	no
$3 + 2 - 5$	$3 - 5 + 2$	yes

A	B	equal?
$3 + 5 * 2$	$2 * 3 + 5$	no
$(8 - 5) - 2$	$8 - (5 - 2)$	no
$3 * (5 * 1)$	$(3 * 5) * 1$	yes

A	B	equal?
$3 / (5 / 1)$	$(3 / 5) / 1$	yes
$(8 - 6) - 1$	$8 - (6 - 5)$	no
$3 * x$	$x * 3$	yes

2. **Simplify these expressions: (hint: some can't be simplified)**

(hint: substitute 2 for x to test your answer)

expression	Simplified
$(3 + 5) + x$	$8 + x$
$(x + 2) + 5$	$x + 7$
$3x / (5 - 3)$	$3x/2$
$(3x / 5) - 3$	$(3x / 5) - 3$

expression	Simplified
$x / (3 + 5)$	$x/8$
$(x / 3) + 5$	$(x / 3) + 5$
$(6 + y) + 3$	$y + 9$
$5(3x)$	$15x$

expression	Simplified
$2(3 + 2) * x$	$10x$
$x + 2(5 + 1)$	$x + 12$
$(3x - 5) + 2$	$3x - 3$
$3x - (5 + 2)$	$3x - 7$

expression	Simplified
$(x / 2) + 5$	$(x / 2) + 5$
$x / (2 + 5)$	$x/7$
$5 + 2 - 6 + 3$	4
$(5 + 2) - (6 + 3)$	-2

3. **Complete the statement using the specified property:**

Property	Statement
Commutative Property of Addition	$3 + x + 5 =$ $x + 8$
Commutative Property of Multiplication	$4 * x * 2 =$ $8x$
Associative Property of Multiplication	$5 * (x * 3) =$ $15x$
Addition Property of Zero	$(0 + x) + 5 =$ $x + 5$
Multiplication Property of One	$1 (7 + x) =$ $7 + x$
Division Property of One	$(3 + x) / 1 =$ $3 + x$

Translate from English to Math: write an algebraic expression and simplify:

4. 10 plus the sum of 5 and x: $10 + 5 + x = 15 + x$

5. 2 times the product of 3 and x: $2(3x) = 6x$

6. The sum of 3 and the product of x and 2: $3 + 2x$