

Name _____

Date _____

Mr. Tallman

Math 7-8A

Lesson #8 - Properties of Real Numbers

	Property	Examples
1	Commutative Property of Addition $a + b = b + a$ * order switches *	$1 + 2 = 2 + 1$ $3 + 6 = 6 + 3$
2	Commutative Property of Multiplication $a \cdot b = b \cdot a$ * order switches *	$8 \cdot 2 = 2 \cdot 8$ $6 \cdot 7 = 7 \cdot 6$
3	Associative Property of Addition $(a + b) + c = a + (b + c)$ * order stays, parentheses move *	$(1 + 2) + 3 = 1 + (2 + 3)$
4	Associative Property of Multiplication $(a \cdot b) \cdot c = a \cdot (b \cdot c)$ * order stays, parentheses move *	$(1 \cdot 2) \cdot 3 = 1 \cdot (2 \cdot 3)$
5	Distributive Property $a(b + c) = a \cdot b + a \cdot c$	$2(3 + 6) = 2 \cdot 3 + 2 \cdot 6$
6	Additive Identity Property $a + 0 = a$	$3 + 0 = 3$ $16 + 0 = 16$
7	Multiplicative Identity Property $a \cdot 1 = a$	$2 \cdot 1 = 2$ $-6 \cdot 1 = -6$
8	Additive Inverse Property $a + (-a) = 0$ * opposites *	$2 + (-2) = 0$ $-72 + (-72) = 0$
9	Zero Property of multiplication $a \cdot 0 = 0$	$3 \cdot 0 = 0$ $-2 \cdot 0 = 0$

For Questions 1-9, write the property that is represented by the given equation.

1) $3 + \frac{1}{2} = \frac{1}{2} + 3$ Commutative property of addition

2) $0.5 \cdot 1.2 = 1.2 \cdot 0.5$ Commutative property of multiplication

3) $13 + (-13) = 0$ Additive Inverse Property

4) $(\frac{2}{3} \cdot 7) \cdot 0.5 = \frac{2}{3} \cdot (7 \cdot 0.5)$ Associative property of multiplication

5) $1.2 \cdot 0 = 0$ Zero property of multiplication

6) $4.2 \cdot (6.8 + 1.7) = 4.2 \cdot 6.8 + 4.2 \cdot 1.7$ ~~Associative~~ ^{Distributive} Property

7) $(9\frac{1}{6} + 2\frac{1}{2}) + 7 = 9\frac{1}{6} + (2\frac{1}{2} + 7)$ Associative property of addition

8) $5.7 + 0 = 5.7$ Additive Identity

9) $7.56 \cdot 1 = 7.56$ Multiplicative Identity

For questions 10-13, complete each equation to make it a true statement.

10) $(6.2 + 7.3) + 9 = 6.2 + (7.3 + \underline{9})$

11) $-15 + \underline{0} = -15$

12) $\frac{2}{3} + \frac{4}{5} = \underline{\frac{4}{5}} + \frac{2}{3}$

13) $1.5 + \underline{(-1.5)} = 0$

Questions 13-16: Multiple Choice

↑
older steps, parenthesis move

13) Which illustrates the associative property?

A) $3.6 \cdot 0 = 0$

B) $(5.2 + 2.8) + 3 = 5.2 + (2.8 + 3)$

C) $6.5 + 7.2 = 7.2 + 6.5$

D) $(1.2 + 8.6) + 9 = 7 - (2.9 + 4.1)$

14) Which illustrates the **multiplicative identity property**?

A) $9\frac{1}{5} \cdot 1 = 9\frac{1}{5}$

B) $8.5 + 0 = 8.5$

C) $3.6 \cdot 0 = 0$

D) $4\frac{8}{11} + (-4\frac{8}{11}) = 0$

15) Which property is being illustrated by the equation $m(a + b) = ma + mb$?

A) Associative

B) Commutative

C) Identity

D) Distributive

16) Which property is being illustrated by the equation $(24 \cdot 9) \cdot 0 = 0$?

A) Commutative Property of Multiplication

B) Associative Property of Multiplication

C) Zero Property of Multiplication

D) Identity Property of Multiplication

Matching Column: Match the EXPRESSION with the correct PROPERTY.

17) $a + b = b + a$

• Zero Property of Multiplication

18) $a \cdot 0 = 0$

• Additive Inverse Property

19) $a(b + c) = ab + ac$

• Commutative Property

20) $a + (-a) = 0$

• Distributive Property

