Teacher: Galluzzo

Name: _____

1. ☐

Which sentence illustrates the distributive property?

1. $xy = yx$
2. $x(yz) = (xy)z$
3. $x(y + z) = xy + xz$
4. $1(xy) = xy$

---

2. ☐

Which sentence illustrates the associative property for multiplication?

1. $ab = ba$
2. $a(bc) = (ab)c$
3. $a \cdot 1 = a$
4. $a(b + c) = ab + ac$

---

3. ☐

What is the additive inverse of $-4a$?

1. $\frac{a}{4}$
2. $4a$
3. $-\frac{a}{4}$
4. $-\frac{1}{4a}$

---

4. ☐

If $a = -2$ and $b = 3$, what is the value of $-3a^2b$?

1. -36
2. 36
3. -54
4. 54

---

5. ☐

Find the value of $4x^2 - 2y$ when $x = -2$ and $y = -1$.

1. 14
2. -14
3. 18
4. -18

---

6. ☐

Which expression represents an irrational number?

1. π
2. $-\frac{2}{3}$
3. $\overline{.3}$
4. $\sqrt{9}$

---

7. ☐

Which equation is an illustration of the additive identity property?

1. $x \times 1 = x$
2. $x + 0 = x$
3. $x - x = 0$
4. $x \cdot \frac{1}{x} = 1$

---

8. ☐

In the step-by-step simplification of the expression below, which property is *not* used?

- $3(1 + x)$
- $3(x + 1)$
- $3 \cdot x + 3 \cdot 1$
- $3x + 3$

1. associative
2. commutative
3. distributive
4. identity

---

9. ☐

Which number is rational?

1. π
2. $\frac{5}{4}$
3. $\sqrt{7}$
4. $\sqrt{\frac{3}{2}}$

---

10. ☐

Which property of real numbers is illustrated by the equation $-\sqrt{3} + \sqrt{3} = 0$?

1. additive identity
2. commutative property of addition
3. associative property of addition
4. additive inverse

---

11. ☐

Which expression is an example of the associative property?

1. $(x + y) + z = x + (y + z)$
2. $x + y + z = z + y + x$
3. $x(y + z) = xy + xz$
4. $x \cdot 1 = x$

---

12. ☐

If $x = -4$ and $y = 3$, what is the value of $x - 3y^2$?

1. -13
2. -23
3. -31
4. -85

---

13. ☐

If M and A represent integers, $M + A = A + M$ is an example of which property?

1. commutative
2. associative
3. distributive
4. closure

---

14. ☐

Which verbal expression represents $2(n - 6)$?

1. two times n minus six
2. two times six minus n
3. two times the quantity n less than six
4. two times the quantity six less than n

---

15. ☐

Which verbal expression is represented by $\frac{1}{2}(n - 3)$?

1. one-half n decreased by 3
2. one-half n subtracted from 3
3. the difference of one-half n and 3
4. one-half the difference of n and 3

---

16. ☐

Which verbal expression is represented by $2(x + 4)$?

1. twice the sum of a number and four
2. the sum of two times a number and four
3. two times the difference of a number and four
4. twice the product of a number and four

---

17) The expression $14 - 2[3 + 5(-4)]$ simplifies to:

18) What is the simplified form of $10x^2y+4x^2y$?

19) Which expression is equivalent to $12 - (-16)$?

1. $-12 +16$
2. $-12 - 16$
3. $12 - 16$
4. $12 + 16$

20) Which expression has the greatest value?

1. $-10 - (-7)$
2. $-6 - (-11)$
3. $-15 - 5$
4. $-8 - 14$

21) Simplify: $5(-4m) - 9m$.

22) Simplify: $6(3a + 2) + 3(a + 4)$

23) What is the simplified form of the expression $-2(-5x - 8)$?

24) What is the simplified form of the expression $4xy + 8xy^2 - 3xy - 6x^2y + 2x^2y$?

Lesson Page

Properties of Real Numbers

Math A

Let **a**, **b**, and **c** be real numbers, variables, or algebraic expressions.

	Property	Example
1.	Commutative Property of Addition $a+b=b+a$	$2+3=3+2$
2.	Commutative Property of Multiplication $a \cdot b=b \cdot a$	$2 \cdot (3)=3 \cdot (2)$
3.	Associative Property of Addition $a+(b+c)=(a+b)+c$	$2+(3+4)=(2+3)+4$
4.	Associative Property of Multiplication $a \cdot (b \cdot c)=(a \cdot b) \cdot c$	$2 \cdot (3 \cdot 4)=(2 \cdot 3) \cdot 4$
5.	Distributive Property $a \cdot (b+c)=a \cdot b+a \cdot c$	$2 \cdot (3+4)=2 \cdot 3+2 \cdot 4$
6.	Additive Identity Property $a+0=a$	$3+0=3$
7.	Multiplicative Identity Property $a \cdot 1=a$	$3 \cdot 1=3$
8.	Additive Inverse Property $a+(-a)=0$	$3+(-3)=0$
9.	Multiplicative Inverse Property $a \cdot \left(\frac{1}{a}\right)=1$ **Note:** a can not = 0	$3 \cdot \left(\frac{1}{3}\right)=1$

10. Zero Property
$a \cdot 0 = 0$ $\quad 5 \cdot 0 = 0$