

Name:

Date:

Period:

1. Which sentence is an example of the distributive property?
(A) $ab = ba$ (B) $a(bc) = (ab)c$ (C) $a(b + c) = ab + ac$ (D) $a \cdot 1 = a$
2. The sentence $3 + (5 + 2) = (5 + 2) + 3$ illustrates:
(A) Commutative property of addition (B) Associative property of addition (C) The distributive property of multiplication over addition (D) The additive identity element
3. Which property is illustrated by the equation $3x - 6y = 3(x - 2y)$?
(A) Associative (B) Commutative (C) Distributive (D) Closure
4. Which sentence illustrates the commutative property for addition?
(A) $(a + b) + c = a + (b + c)$ (B) $a(b + c) = ab + ac$ (C) $a + 0 = a$ (D) $a + b = b + a$
5. Which sentence illustrates the distributive property?
(A) $xy = yx$ (B) $x(yz) = (xy)z$ (C) $x(y + z) = xy + xz$ (D) $1 \cdot (xy) = xy$
6. Which sentence illustrates the associative property for multiplication?
(A) $ab = ba$ (B) $a(bc) = (ab)c$ (C) $a \cdot 1 = a$ (D) $a(b + c) = ab + ac$
7. Which property is illustrated by the equation $-8 + 0 = -8$?
(A) Additive inverse (B) Additive identity (C) Commutative property (D) Distributive property
8. Which property is illustrated by the equation $3(x + 4) = 3x + 12$?
(A) Associative property of addition (B) Commutative property of addition (C) The distributive property of multiplication over addition (D) Transitive property of equality
9. Which property is demonstrated by the following equation? $a(b + c) = ab + ac$
(A) Associative property of addition (B) Distributive property (C) Commutative property of addition (D) Identity property of addition
10. Which equation illustrates the distributive property?
(A) $p(q + r) = pq + pr$ (B) $(p + q) + r = p + (q + r)$ (C) $pq = qp$ (D) $p + 0 = p$
11. Which number property is illustrated by $\frac{35}{4} + 0 = \frac{35}{4}$?
(A) Associative property for addition (B) Commutative property for addition (C) Identity property for addition (D) Inverse property for addition
12. Which is an illustration of the associative property?
(A) $a \cdot b = b \cdot a$ (B) $a \cdot (b \cdot c) = (b \cdot c) \cdot a$ (C) $a \cdot b = a$ (D) $a \cdot (b \cdot c) = (a \cdot b) \cdot c$

13. Which is an illustration of the associative property?

- (A) $ab = ba$ (B) $a(b + c) = ab + ac$ (C) $a(bc) = (ab)c$ (D) $a + 0 = a$

14. Which is an illustration of the associative property?

- (A) $x \oplus y = y \oplus x$ (B) $x \oplus (y \times z) = (x \oplus y) \times (x \oplus z)$ (C) $x \oplus (y \oplus z) = (y \oplus z) \oplus x$ (D) $x \oplus (y \oplus z) = (x \oplus y) \oplus z$

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

$$\begin{aligned} &3(1 + x) \\ &3(x + 1) \\ &3 \cdot x + 3 \cdot 1 \\ &3x + 3 \end{aligned}$$

- (A) Associative (B) Commutative (C) Distributive (D) Identity

16. In the set of rational numbers what is the identity element for multiplication? _____

17. In the solution of this problem, which property of real numbers justifies statement 5?

Statements	Reasons
1. $3x = 6$	1. Given
2. $\frac{1}{3}(3x) = \frac{1}{3}(6)$	2. Multiplication Axiom
3. $(\frac{1}{3} \cdot 3)x = 2$	3. Associative Property
4. $1 \cdot x = 2$	4. Multiplicative Inverse
5. $x = 2$	5. ?

- (A) Closure (B) Identity (C) Commutative (D) Inverse

18. Which property is illustrated by

$$\text{gear} (\text{smiley} + \text{yin-yang}) = \text{gear smiley} + \text{gear yin-yang}$$

- (A) Distributive (B) Associative (C) Commutative (D) Transitive

19. Which statement is an illustration of the commutative property of real numbers?

- (A) $5 + 3 = 3 + 5$ (B) $5(6 + 7) = 5(6) + 5(7)$ (C) $(\frac{1}{2} + \frac{1}{3}) + \frac{1}{4} = \frac{1}{2} + (\frac{1}{3} + \frac{1}{4})$ (D) $-5 + 0 = -5$

20. Which property is illustrated by the equation

$$\text{scissors} + (\text{box} + \text{box}) = (\text{scissors} + \text{box}) + \text{box}$$

- (A) Distributive property (B) Associative property for addition (C) Commutative property for addition (D) Additive inverse

21. Which equation illustrates the distributive property for real numbers?

- (A) $\frac{1}{3} + \frac{1}{2} = \frac{1}{2} + \frac{1}{3}$ (B) $\sqrt{3} + 0 = \sqrt{3}$ (C) $(1.3 \times 0.07) \times 0.63 = 1.3 \times (0.07 \times 0.63)$ (D) $-3(5 + 7) = (-3)(5) + (-3)(7)$

22. Tori computes the value of 8×95 in her head by thinking $8(100 - 5) = 8 \times 100 - 8 \times 5$. Which number property is she using?
- (A) Associative (B) Distributive (C) Commutative (D) Closure
23. Which equation illustrates the associative property of addition?
- (A) $x + y = y + x$ (B) $3(x + 2) = 3x + 6$ (C) $(3 + x) + y = 3 + (x + y)$ (D) $3 + x = 0$
24. Which expression is an example of the associative property?
- (A) $(x + y) + z = x + (y + z)$ (B) $x + y + z = z + y + x$ (C) $x(y + z) = xy + xz$ (D) $x \cdot 1 = x$
25. Which equation illustrates the distributive property of multiplication over addition?
- (A) $6(3a + 4b) = 18a + 4b$ (B) $6(3a + 4b) = 18a + 24b$ (C) $6(3a + 4b) = (3a + 4b)6$ (D) $6(3a + 4b) = 6(4b + 3a)$
26. Which equation illustrates the distributive property?
- (A) $5(a + b) = 5a + 5b$ (B) $a + b = b + a$ (C) $a + (b + c) = (a + b) + c$ (D) $a + 0 = a$
27. The equation $\star(\star + \pencil) = \star\star + \star\pencil$ is an example of the
- (A) Associative Law (B) Commutative Law (C) Distributive Law (D) Transitive Law
28. While $4(x + 2) = 28$, Becca wrote $4x + 8 = 28$. Which property did she use?
- (A) Distributive (B) Associative (C) Commutative (D) Identity
29. If M and A represent integers, $M + A = A + M$ is an example of which property?
- (A) Commutative (B) Associative (C) Distributive (D) Closure
30. Which equation illustrates the associative property?
- (A) $a(1) = a$ (B) $a + b = b + a$ (C) $a(b + c) = (ab) + (ac)$ (D) $(a + b) + c = a + (b + c)$
31. Which property is represented by the statement $\frac{1}{2}(6a + 4b) = 3a + 2b$?
- (A) Commutative (B) Distributive (C) Associative (D) Identity
32. Which property is illustrated by the equation $6 + (4 + x) = 6 + (x + 4)$?
- (A) Associative property of addition (B) Associative property of multiplication (C) Distributive property (D) Commutative Property of Addition
33. Which property is illustrated by the equation $4x(2x - 1) = 8x^2 - 4x$?
- (A) Associative (B) Commutative (C) Distributive (D) Identity